



CSI

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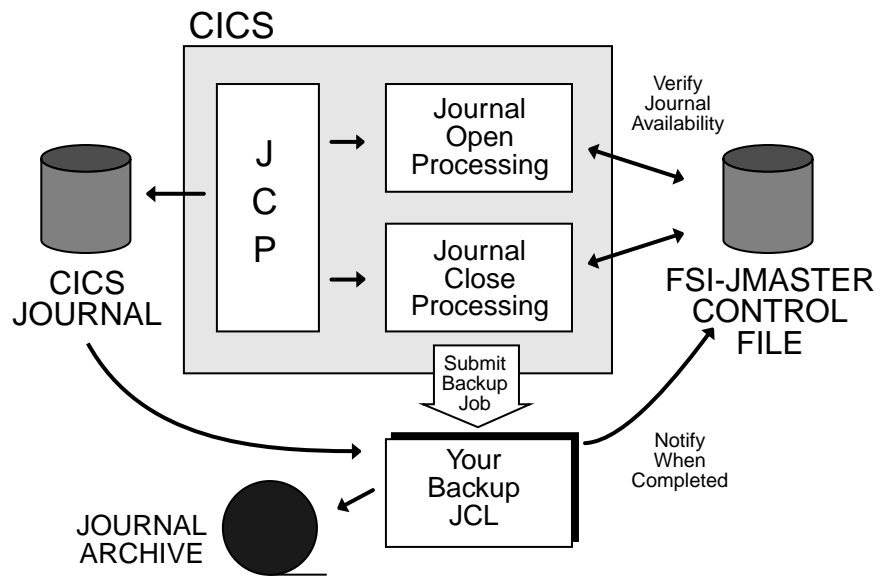
GETTING STARTED

Introduction

FSI-JMASTER provides an automated mechanism for backing up CICS Journals as they are filled by CICS, and protecting the CICS Journals from being reused before the backups have been completed.

FSI-JMASTER manages and protects your CICS Journals by using the CICS Journal open/close exits that became available with CICS release 1.7, and a "Journal Control File" that you create and maintain with a utility program (CSIJMSTR) supplied with FSI-JMASTER.

The Journal Control File defines which CICS Journals in each of your CICS Systems are to be protected by FSI-JMASTER. The file also contains the JCL that will be submitted to perform the backups.



Features and Benefits of FSI-JMASTER

These are the benefits that you get from using FSI-JMASTER:

- Your CICS Journals are protected against reuse by CICS until a backup can be made.
- FSI-JMASTER can be used on any CICS Journal, including the System Log.
- The CICS "pause" messages at journal switch are eliminated. This allows the journal switch to occur without waiting for an operator response.
- An "event history" is automatically maintained for each CICS Journal, showing when each journal has been opened, closed, and backed up.
- The size of journal files can be reduced (if two extents are being used) saving valuable DASD space. Since the journal backups are automatically submitted without CICS being held, you don't need to be concerned about having journals large enough to prevent them from filling up.
- If the journal backups are made to DASD files, the entire process can be performed without operator intervention.
- The journal backup JCL is submitted by FSI-JMASTER, but you can use any utility you desire for the actual backup.
- FSI-JMASTER can be used in conjunction with IBM's DBRC to provide complete and automatic journal management and recovery for your IMS/DB environment.
- Automatic journal switches can be scheduled to occur whenever you need them using the FSI-JMASTER Automatic Journal Switching Facility.

Companion Products in the Reliant Family

- FSI-JOURNAL provides your batch programs with the same type of journaling support for VSAM datasets as CICS provides for your on-line programs.
- FSI-RECOV is a system designed to recover VSAM datasets updated by CICS/VS or batch applications, if VSAM changes are journaled. Journal datasets created by CICS/VS (SMF or standard format) or FSI-JOURNAL can be used as input to FSI-RECOV. This system can be used to recreate a dataset's condition prior to a disk failure, head crash or dataset deletion, using a dataset backup and the appropriate journals.

Migration Requirements

This section covers the changes in the installation of FSI-JMASTER that may be required if you are migrating from an earlier release.

Changes for Release 3.0

- The FSI-JMASTER control file FCT entry name has changed from BIMJMS to RLNJMS.

Changes for Release 2.1

- This release of FSI-JMASTER has been completely redesigned to include support for CICS 3.2 and above, which requires all CICS programs to be Command-level. Several changes have been made to the installation process due to this new design.
- Transaction 'JMSC' and program 'CSIJMS01' have dropped. New transactions and programs have been added. Refer to the section "Installation" for more information.

Changes for Release 1.4

- This release of FSI-JMASTER requires a CICS Startup PLT module, CSIJMSPL, that performs AUTOSWITCH and TIMEOUT processing. This PLT module was added to allow FSI-JMASTER to be defined to CICS using RDO definitions instead of PCT/PPT entries. Refer to "Installation Step 7" for more information.
- A new Operand, SHUTDOWN, has been added to the DEFINE JOURNAL and ALTER JOURNAL Commands. This Operand is used to specify whether or not FSI-JMASTER should automatically submit a Journal Backup for the specified journal at CICS shutdown.
- A new Sub-Operand has been added to the AUTOSWITCH Operand of the DEFINE JOURNAL and ALTER JOURNAL Commands. The new Sub-Operand can be used to turn the Automatic Journal Switching feature on or off, without having to remove the name of the switching schedule.

- This release of FSI-JMASTER requires an UPGRADE of your existing Journal Control File. Refer to "Installation Step 2" for more information.

Changes for Release 1.2

- A new Command, OPTION UPGRADE, has been added. This Command **must** be used whenever you convert to a new release of FSI-JMASTER. This Command must also be used if you change the CISIZE of the Journal Control File. Refer to sections "Installation" and the "OPTION Command" for more information.
- A new Command, OPTION SETCOND, has been added. This Command can be used as part of the Journal Backup JCL to set the Jobstep Return/Condition Code based on a specified comparison. Refer to section "OPTION Command" for more information.
- A new Operand, AUTOSWITCH, has been added to the DEFINE JOURNAL and ALTER JOURNAL Commands. This Operand is used to activate the Automatic Journal Switching Facility of FSI-JMASTER. Refer to section "Automatic Journal Switching" for more information.
- A new Operand, SCHEDULE, has been added to the LOAD, DELETE, and PRINT Commands. This Operand is used as part of the Automatic Journal Switching Facility of FSI-JMASTER. Refer to section "Automatic Journal Switching" for more information.
- A new Command, PRINT ALL, has been added. This Command provides the capability to print all or selected Journal, JCL and/or SCHEDULE definitions based on generic specifications.
- Four new JCL System Variables have been added. %DTEJ, %DTEMDY, %DTEYMD and %DETDMY. These new variables allow the current date to be substituted into JCL, without punctuation.
- New CICS PCT and PPT entries are required for the FSI-JMASTER Automatic Journal Switching Facility. Refer to section "Installation" for more information.

Installation

The FSI-JMASTER programs described in this manual run under MVS, and are distributed on a tape containing three datasets created by IEBCOPY.

1. The first dataset contains source modules and sample JCL.
2. The second dataset contains pre-generated load modules for use with CICS releases prior to 3.2.
3. The third dataset contains pre-generated load modules for use with CICS releases 3.2 and above.

Load Library Modules:

CSIJMSTR	Utility to create and maintain the Journal Control File
CSIXJCO	CICS Journal Open Exit (replaces DFHXJCO)
CSIXJCC	CICS Journal Close Exit (replaces DFHXJCC)
CSIJMS35	General File Access module
CSIJMS51	JCL Submission module
CSIJMS53	Started task processing module
CSIJMS55	CICS File access module
CSIJMS56	Startup File access module
CSIJMS57	Timeout processing module
CSIJMS58	Schedule processing module
CSIJMS60	Configuration module
CSIJMSMO	Message module
CSIJMSPL	CICS Startup PLT module
CSIHDY00	Default Holiday Table

Source Library Modules:

CSIJMSDF	Sample JCL to define and initialize the VSAM Journal Control File
CSIJMSFC	Sample CICS FCT entry for the Journal Control File
CSIJMSD1	Sample CICS DCT TYPE=SDSCI entry for the JCL submission process
CSIJMSD2	Sample CICS DCT TYPE=EXTRA entry for the JCL submission process
CSIJMSJB	Sample Journal Backup JCL (see "JCL for Journal Backup")

CSICDT01	Sample Holiday Table Exit
CSIHDAY	Macro used to generate a Holiday Table
CSIHDY00	Default Holiday Table Source

Minimum library space required:

Source Library:	40	Blocks, Blocksize =	3280
Load Library:	110	Blocks, Blocksize =	8192

Installation Step 1

Create the following JCL which will load the distribution tape to your Source and Load Libraries.

```
//JOBID      JOB (accounting), 'LOAD CSIJMSTR',  
//          CLASS=A,MSGCLASS=*,MSGLEVEL=(1,1)  
//*  
//*  LOAD FSI-JMASTER DISTRIBUTION TAPE  
//*  
//IEBCOPY EXEC PGM=IEBCOPY  
//SYSPRINT  DD SYSOUT=*  
//TAPEF1    DD DSN='CSIJMSTR.SOURCE',UNIT=TAPE,DISP=OLD,  
//          LABEL=(1,SL),VOL=(,RETAIN,SER=CSISYS)  
//TAPEF2    DD DSN='CSIJMSTR.LOADLIB',UNIT=TAPE,DISP=OLD,  
//          LABEL=(2,SL),VOL=REF=*.TAPEF1  
//SRCELIB   DD DSN='your.sourclib',DISP=SHR  
//LOADLIB   DD DSN='your.loadlib',DISP=SHR  
//SYSIN     DD *  
            COPY I=((TAPEF1,R)),O=SRCELIB  
            COPY I=((TAPEF2,R)),O=LOADLIB  
//*  
//
```

Installation Step 2

The FSI-JMASTER Journal Control File must be defined and initialized. Sample JCL is provided in source member CSIJMSDF.

If you are migrating from an earlier release of FSI-JMASTER, or if you are changing the CISIZE of an existing Journal Control File, you must use the OPTION UPGRADE Command as shown below.

Defining a new Journal Control File

Step 1 in CSIJMSDF uses program IDCAMS to define the VSAM Journal Control File. You can modify the DEFINE CLUSTER operands to fit your needs, however, the Journal Control File must be defined with the following values:

<pre>CLUSTER INDEXED KEYS(64 0) SHAREOPTIONS(4) RECORDSIZE(rrrrr rrrrr) . .</pre>
<pre>DATA CONTROLINTERVALSIZE(ccccc) . .</pre>

Notes:

rrrrr RECORDSIZE must be 7 bytes less than the value chosen for ccccc .

cccccc You can choose any value you desire for Control Interval Size. A size of 512 will normally be large enough. Larger sizes will allow more JCL lines to be stored in a single block. If JCL members span more than one block in the Journal Control File, additional I/O is required to "lock" the JCL during submission and maintenance functions.

The Control Interval Size also affects the amount of Journal EVENT history that can be maintained. A Control Interval of 512 will leave room for 29 Journal EVENT's. For each additional 512 bytes in Control Interval Size, you will get an additional 64 EVENT's. Refer to the NOTIFY Command for more information on Journal EVENT's.

Step 2 in Job CSIJMSDF will execute program CSIJMSTR to define and delete a dummy record in the Journal Control File. This step must be executed before any other functions can be performed against the Journal Control File.

Upgrading an existing Journal Control File

The following sample JCL can be used to upgrade an existing FSI-JMASTER Journal Control File. You must run this job:

- whenever you convert to a new release of FSI-JMASTER
- whenever you change the CISIZE of your Journal Control File.

You should back up your existing Journal Control File before running this job.

```
.....1.....2.....3.....4.....5.....6.....7.....8
//job      JOB
//step1    EXEC PGM=CSIJMSTR
//STEPLIB DD DSN=your.load.lib,DISP=SHR
//RLNJMS   DD DSN=journal.control.file,DISP=SHR
//SYSPRINT DD SYSOUT=*
//SYSIN    DD *
OPTION UPGRADE
/*
/ &
```

Installation Step 3

Add a CICS FCT or RDO FILE entry for the Journal Control File to each CICS that will use FSI-JMASTER. A sample FCT entry is provided in source member CSIJMSFC.

```

10....16..20...30...35...40...45.          ...72
  DFHFCT TYPE=DATASET,                      X
    DATASET=RLNJMS,                          X
    LOG=NO,                                  (REQUIRED) X
    JID=NO,                                  (REQUIRED) X
    FILSTAT=( ENABLED ,CLOSED) ,            (REQUIRED) X
    RSL=PUBLIC,                              X
    ACCMETH=( VSAM ,KSDS ,KEY) ,            X
    SERVREQ=( GET ,PUT ,UPDATE ,NEWREC ,    X
    BROWSE ,DELETE) ,                      X
    RECFORM=( VARIABLE ,BLOCKED) ,         X
    BUFND=2,                                X
    BUFNI=1,                                X
    STRNO=1

```

The Journal Control File is accessed by the Journal Open/Close exits from within the CICS Journal Control Program. Therefore, the Journal Control File cannot have CICS Automatic Journaling or Automatic Logging defined.

Remember to add a DD statement for the Journal Control File to your CICS startup JCL as follows ...

```
//RLNJMS DD DSN=your.cluster.name,DISP=SHR
```

The DDNAME for the Journal Control File is "RLNJMS". If you cannot use this name, refer to the section "Customizing FSI-JMASTER".

CICS 3.1 and above:

The following table defines the Operands required if you are using RDO to define the Journal Control File.

OBJECT	
CHARACTERISTICS	
File	RLNJMS
Group	
VSAM PARAMETERS	
DSName	your.dataset.name
Lsrpoolid	None
DSNsharing	Allreqs
STRings	004
INITIAL STATUS	
STatus	Enabled
Opentime	Firstref
Disposition	Share
BUFFERS	
Databuffers	00003
Indexbuffers	00002
DATA FORMAT	
RECORDFormat	V
OPERATIONS	
Add	Yes
Browse	Yes
DELeTe	Yes
REAd	Yes
UpdatE	Yes
AUTO JOURNALLING	
Journal	No (required)
JNLRead	None (required)
JNLSYNCRRead	No (required)
JNLUpdate	No (required)
JNLAdd	None (required)
JNLSYNCRWrite	Yes
RECOVERY PARAMETERS	
RECOVery	None
FWDrecovlog	No
SECURITY	
RESsecnum	00

Installation Step 4

Add the CICS DCT entries for the JCL submission process to each CICS that will use FSI-JMASTER. Sample DCT entries are provided in source members CSIJMSD1 and CSIJMSD2.

CSIJMSD1

```
10....16..20...30...35...40...45      ...72
  DFHDCT TYPE=SDSCI,                      X
      DSCNAME=IRDR,                       X
      BLKSIZE=80,                          X
      RECFORM=FIXUNB,                      X
      TYPEFLE=OUTPUT
```

CSIJMSD2

```
10....16..20...30...35...40...45      ...72
  DFHDCT TYPE=EXTRA,                      X
      DESTID=IRDR,                         X
      DSCNAME=IRDR
```

You will also need to add a DD statement to your CICS startup JCL as follows ...

```
//IRDR DD SYSOUT=(A,INTRDR)
```

The Transient Data Queue name for the JCL submission process is "IRDR". If you cannot use this name, refer to the section "Customizing FSI-JMASTER".

The Journal Open Exit issues a CICS ENQUEUE prior to using the Transient Data Queue. If you have applications using the same Queue, refer to the customization section to determine if the ENQUEUE name should be changed.

Installation Step 5

Add the following CICS PCT or CEDA TRANSACTION entries to each CICS system that will be using FSI-JMASTER:

```

10...16..20...30...35...40...45.      ...72
  DFHPCT TYPE=ENTRY,                    X
    TRANSID=JMSI,                        X
    PROGRAM=CSIJMS53
  DFHPCT TYPE=ENTRY,                    X
    TRANSID=JMST,                        X
    PROGRAM=CSIJMS57
  DFHPCT TYPE=ENTRY,                    X
    TRANSID=JMSP,                        X
    PROGRAM=CSIJMSPL

```

```

CEDA DEFINE TRAN(JMSI) PROGRAM(CSIJMS53)

CEDA DEFINE TRAN(JMST) PROGRAM(CSIJMS57)

CEDA DEFINE TRAN(JMSP) PROGRAM(CSIJMSPL)

```

These are internal transactions used by the JCL timeout and Automatic Journal Switching Facilities of FSI-JMASTER.

If you cannot use Tran IDs "JMSI", "JMST" and "JMSP", refer to section "Customizing FSI-JMASTER".

CICS Releases 3.3 and above:

If your installation has storage protection enabled in the System Initialization Table (SIT) with STGPROT=YES, then all JMASTER program definitions must have the EXECKey=CICS and all Transaction definitions must have the TASKDATAKey=CICS. Otherwise, access to certain storage areas needed by FSI-JMASTER will be denied, resulting in a series of abends that will be detrimental to the integrity of CICS.

Installation Step 6

Add the following CICS PPT or CEDA PROGRAM entries to each CICS system that will be using FSI-JMASTER:

```

10...16..20...30...35...40...45.      ...72
DFHPPT TYPE=ENTRY,                      X
    PROGRAM=CSIJMS35
DFHPPT TYPE=ENTRY,                      X
    PROGRAM=CSIJMS51
DFHPPT TYPE=ENTRY,                      X
    PROGRAM=CSIJMS53
DFHPPT TYPE=ENTRY,                      X
    PROGRAM=CSIJMS55
DFHPPT TYPE=ENTRY,                      X
    PROGRAM=CSIJMS56
DFHPPT TYPE=ENTRY,                      X
    PROGRAM=CSIJMS57
DFHPPT TYPE=ENTRY,                      X
    PROGRAM=CSIJMS58
DFHPPT TYPE=ENTRY,                      X
    PROGRAM=CSIJMS60,RES=YES
DFHPPT TYPE=ENTRY,                      X
    PROGRAM=CSIJMSMO
DFHPPT TYPE=ENTRY,                      X
    PROGRAM=CSIJMSPL
DFHPPT TYPE=ENTRY,                      X
    PROGRAM=CSIHDY00

```

```

CEDA DEFINE PROG(CSIJMS35) LANG(A)
CEDA DEFINE PROG(CSIJMS51) LANG(A)
CEDA DEFINE PROG(CSIJMS53) LANG(A)
CEDA DEFINE PROG(CSIJMS55) LANG(A)
CEDA DEFINE PROG(CSIJMS56) LANG(A)
CEDA DEFINE PROG(CSIJMS57) LANG(A)
CEDA DEFINE PROG(CSIJMS58) LANG(A)
CEDA DEFINE PROG(CSIJMS60) LANG(A) RES(YES)
CEDA DEFINE PROG(CSIJMSMO) LANG(A)
CEDA DEFINE PROG(CSIJMSPL) LANG(A)
CEDA DEFINE PROG(CSIHDY00) LANG(A)

```

Note 1: Program CSIJMS60 must be defined with the **RES** option.

Note 2: See notice to CICS 3.3 and above users in previous installation step!

Installation Step 7

Add the following CICS Startup PLT and Shutdown PLT entry to each CICS system that will be using FSI-JMASTER:

```
10....16..20...30...35...40...45.      ...72
DFHPLT TYPE=ENTRY,                      X
PROGRAM=CSIJMSPL
```

The PLT entry for CSIJMSPL must be inserted into the Startup PLT after the entry for DFHDELIM, and into the Shutdown PLT before the entry for DFHDELIM. (The DFHDELIM entry in the Startup PLT is new as of CICS 3.3.)

Program CSIJMSPL initiates AUTOSWITCH and TIMEOUT processing for FSI-JMASTER during CICS Startup.

The PLT entry during shutdown is required to cause CSIJMS53 to terminate. If CSIJMS53 is not terminated by the PLT, the CICS region will not properly shutdown.

If the PLT fails to properly terminate CSIJMS53, and the JMSI transaction remains active, it may be purged via CEMT to allow the region to terminate normally.

Installation Step 8

The load library containing the FSI-JMASTER modules must appear in the CICS DFHRPL DD statement, ahead of the DD for 'CICS.LOADLIB', or 'CICS.SDFHLOAD' for CICS 3.2 and above.

CSIXJCO and CSIXJCC must be renamed to replace the existing CICS "dummy" modules DFHXJCO and DFHXJCC. If you have copied the FSI modules into your 'CICS.LOADLIB', you must rename the CICS "dummy" modules to new names prior to the rename.

Installation Step 9

Activate FSI-JMASTER for at least one of your CICS Journals. You may need to remove Jouropt=PAUSE from the JCT entries. Refer to section "Using FSI-JMASTER" for more information.

Installation Step 10

Verify the installation of FSI-JMASTER. Bring up your CICS system and use the CEMT JOURNAL transaction to switch the journal file that you activated in the previous step from one extent to the other. The backup JCL should be submitted at the first switch.

Switch the journal again, and your transaction should wait until the JCL from the first switch has completed.

Customizing FSI-JMASTER

You can customize many of the actions taken by FSI-JMASTER by altering the defaults contained within the following load modules:

- **CSIXJCO**
- **CSIJMS60**

All customization changes must be made to both modules.

You can use the standard IBM utility AMASPZAP to alter the load modules.

```
//STEP1      EXEC  PGM=AMASPZAP
//SYSLIB     DD    DSN=bim.software.lib,DISP=SHR
//SYSPRINT   DD    SYSOUT=*
//SYSIN      DD    *
             NAME  CSIXJCO  CSIXJCO
             VER   014C    0000001C
             REP   014C    0000002C
             NAME  CSIJMS60  CSIJMS60
             VER   014C    0000001C
             REP   014C    0000002C
/*
```

The following table contains the values that can be modified in FSI-JMASTER. The same offsets are used in both modules, CSIXJCO and CSIJMS60.

offset	Default	Format	Description
+134	RLNJMS	CL8	DDNAME for Journal Control File.
+13C	(blanks)	CL8	Name of a User Exit to XCTL to after OPEN has been completed (not during CICS startup)
+144	(blanks)	CL8	Name of a User Exit to XCTL to after CLOSE has completed (not during CICS startup)
+14C	x'0000001C'	PL4	Retry wait interval (hhmmss) for JCL locked condition

(continued on next page)

offset	Default	Format	Description
+150	x'0000005C'	PL4	Retry count for JCL locked condition
+154	x'10'	AL1	ENQUEUE length for IRDR Queue
+155	CSIJMASTERSUBMIT	CL16	ENQUEUE name for IRDR Queue
+165	IRDR	CL4	Transient Data Queue for JCL submission
+169	JMST	CL4	CICS Tran ID to be started for TIMEOUT processing and AUTOSWITCH scheduling
+16D	CSML	CL4	Transient Data Queue for Error Messages
+171	RLNB	CL4	CICS Abend Code that will be used if a fatal processing error occurs
+175	x'0200'	XL2	MVS WTO Descriptor codes (7) (for normal messages)
+177	x'0120'	XL2	MVS WTO Route codes (8,11) (for normal messages)
+179	x'0220'	XL2	MVS WTO Descriptor codes (7,11) (for messages requiring a reply)
+17B	x'0120'	XL2	MVS WTO Route codes (8,11) (for messages requiring a reply)
+17D	(reserved)	CL4	
+181	RLNJMS	CL6	CICS REQID used for AUTOSWITCH processing
+187	000500	CL6	Minimum interval between Automatic Journal Switches (hhmmss). This is a global check to prevent an error in the schedule processing from switching your journal files too often
+18D	CSIHDY00	CL8	PPT name of the Holiday table used for AUTOSWITCH scheduling. If set to spaces, Holiday processing will be bypassed
+195	(reserved)	CL51	
+1C8	JMSI	CL4	CICS Tran ID to be used for IC control

USING FSI-JMASTER

Activating FSI-JMASTER

The following steps will activate FSI-JMASTER on one or more of your CICS Journals.

You must complete the installation and customization of FSI-JMASTER before attempting to activate any of your CICS Journals.

Define Backup JCL

Code the JCL members required to back up your CICS Journals and load them to the Journal Control File using the LOAD JCL Command of CSIJMSTR.

Refer to the LOAD JCL Command and section "JCL for Journal Backup" for a sample of what the backup JCL should do.

You may find it helpful to use the SUBMIT Command to test the JCL members you are creating.

Define Journals on Journal Control File

Use the DEFINE JOURNAL Command to define the CICS Journals that you want controlled by FSI-JMASTER.

The DEFINE JOURNAL Command provides the name of the JCL member that is to be submitted to back up each of the CICS Journals that are controlled by FSI-JMASTER.

Update your CICS JCT's

You must remove the JCT option **JOUROPT=PAUSE** and/or **JOUROPT=READY** from all the CICS Journals that you want controlled by FSI-JMASTER.

If these options are not removed, CICS will wait for an operator response after every journal switch.

JCL for CSIJMSTR Utility

Shown below is an example of the JCL that is required to execute program CSIJMSTR.

This program is used to define the CICS Journals that are to be protected, and the JCL that is to be submitted by FSI-JMASTER.

```
.....1.....2.....3.....4.....5.....6.....7.....8
1 //job JOB
2 //step1 EXEC PGM=CSIJMSTR
3 //STEPLIB DD DSN=your.load.lib,DISP=SHR
4 //RLNJMS DD DSN=journal.control.file,DISP=SHR
5 //IRDR DD SYSOUT=(A,INTRDR)
6 //SYSPRINT DD SYSOUT=*
7 //SYSIN DD *
8 /* place your commands here */
9 /*
10 //
```

Notes on JCL example

Line 3: The STEPLIB must point to the Load Library containing the program CSIJMSTR.

Line 4: The DD statement for RLNJMS must point to the Journal Control file that is referenced by the CICS system containing the journal(s) you are defining.

Line 5: The DD statement for IRDR is only required if you are using the SUBMIT Command.

Lines 7 through 9: Refer to section "Commands and Operands" for a complete description of the commands used by CSIJMSTR.

JCL for Journal Backup

Shown below is an example of the type of JCL that should be executed to back up a CICS Journal and make it available for reuse by CICS. Following the example is a description of each of the steps in the backup job.

```

.....+.....1.....+.....2.....+.....3.....+.....4.....+.....5.....+.....6.....+.....7.....+.....8

1 //backup JOB
2 /**
3 /**      BACKUP CICS JOURNAL DATASETS
4 /**
5 //step1 EXEC PGM=CSIJMSTR
6 //STEPLIB DD DSN=your.load.lib,DISP=SHR
7 //RLNOMS DD DSN=%/CFDSN,DISP=SHR
8 //SYSPRINT DD SYSOUT=*
9 //SYSIN DD *
10 OPTION %UPDATE
11 NOTIFY JOURNAL(%/APPLID)/%/JID)/%/ABX) -
12     EVENT(BACKUP START)
13 /**
14 //step2 EXEC PGM=CSIRECOV
15 //STEPLIB DD DSN=your.load.lib,DISP=SHR
16 //journal DD DSN=%/JDSN,DISP=SHR
17 //backup DD DSN=backup.%/APPLID.J)/%/JID.)/%/ABX,
18     DISP=(NEW,CATLG),
19     UNIT=TAPE,DCB=BLKSIZE=8192
20 //SYSPRINT DD SYSOUT=*
21 //SYSIN DD *
22 INPUT JOURNAL(journal) SORT %/CICSREL
23 OUTPUT BACKUP(backup)
24 /**
25 //step3 EXEC PGM=DFHJCJFP
26 //STEPLIB DD DSN=cics.loadlib,DISP=SHR
27 //JOURNAL DD DSN=%/JDSN,DISP=SHR
28 //step4 EXEC PGM=CSIJMSTR
29 //STEPLIB DD DSN=your.load.lib,DISP=SHR
30 //RLNOMS DD DSN=%/CFDSN,DISP=SHR
31 //SYSPRINT DD SYSOUT=*
32 //SYSIN DD *
33 OPTION %UPDATE
34 NOTIFY JOURNAL(%/APPLID)/%/JID)/%/ABX) AVAILABLE -
35     EVENT(BACKUP END)
36 /**
37 //

```

Notes on JCL example**Lines 5 through 13:**

Step1 is optional. Its purpose in this example is to log the fact that a journal backup has started. This information is stored in the Journal Control File and can be used as an audit trail of the activity against your CICS Journals. You can print this information by using the PRINT JOURNAL Command of CSIJMSTR.

Line 7:

The value "%CFDSN" is a CSIJMSTR System Variable. It will be replaced with the dataset name of the RLNJMS file defined to the job (CICS) that submits this JCL. If you use the same JCL in multiple RLNJMS files, this variable ensures that the correct RLNJMS file will be posted by the NOTIFY.

Refer to the LOAD JCL Command for a full description of System Variables. System Variables allow a single JCL member of the Journal Control File to be used to back up more than one CICS Journal.

Line 10:

The value "%UPDATE" is a CSIJMSTR System Variable. The purpose of this OPTION Command is to prevent updates to the Journal Control File if this JCL is submitted via the SUBMIT Command of CSIJMSTR. Refer to the UPDATE Operand of the SUBMIT Command.

Line 11:

The values "%APPLID", "%JID" and "%ABX" are CSIJMSTR System Variables that are replaced during JCL submission with the actual values for APPLID, JID and journal extent. Refer to the LOAD JCL Command for a full description of System Variables.

Lines 14 through 24:

Step2 is the journal backup step. In this example we are using FSI's Recovery System FSI-RECOV to backup the CICS Journal. You can use IDCAMS or any utility you want to backup the journal.

System Variables are used in this step to supply the journal dataset name and to supply portions of the Journal Backup dataset name. Refer to the notes on **Line 11**.

Line 22:

The value "%CICSREL" is a CSIJMSTR System Variable that is replaced during JCL submission with the release number of the CICS system. Use this variable to ensure that FSI-RECOV processes the journal correctly.. Refer to the LOAD JCL Command for a full description of System Variables.

Lines 25 through 27:

Step3 is optional. Its purpose in this example is to initialize the CICS Journal after the backup.

Make sure you do not test your JCL with the SUBMIT Command with this step included.

If journals are not initialized after each backup, some journal records could be duplicated on successive backups. FSI-RECOV can handle this situation without any problems, however, if you have other programs that access these journal backups, they may not operate correctly.

Lines 28 through 36:

Step4 is required. Its purpose is to log the fact that a journal backup has completed, and to mark the CICS Journal "available" in the Journal Control File. If this step is not performed, when CICS attempts to reuse the journal that was just backed up, it will be stopped by the Journal Open Exit (DFHXJCO).

Line 33:

The purpose of this OPTION Command is to prevent updates to the Journal Control File if this JCL is submitted via the SUBMIT Command of CSIJMSTR. Refer to **Line 10**.

Journal Open Exit Processing Overview

This section provides a technical overview of the processing decisions that are made in the Journal Open Exit. It is not required that you know or understand these rules to make use of FSI-JMASTER. This information is provided so that if something unexpected occurs, you may understand why it occurred.

The Journal Open Exit (DFHXJCO) receives control immediately prior to CICS opening a disk journal for output processing. The Journal Open Exit provided with FSI-JMASTER performs a series of tests that it uses to determine what actions are required to back up or protect each CICS Journal that is defined on the Journal Control File.

The actions that the Journal Open Exit takes are based on the following...

- Whether or not the CICS Journal is defined on the Journal Control File.
- The type of volume positioning specified on the journal open request.
- Which journal extent is being opened (A/B/X).
- The status of the journal extent on the Journal Control File.
- Whether or not CICS is currently in Emergency Restart processing.

The remainder of this section covers each of the tests that are made by the Journal Open Exit, and the resulting action taken.

Is Automatic Journal Backup required ?

FSI-JMASTER will only monitor and protect CICS Journals that have been defined in the Journal Control File. If the journal about to be opened is not in the Journal Control File, the CICS open request will be allowed and no further tests will be made.

Protect Single Extent Journals

If a VOLUME=NEXT open request is attempted, the status of the journal extent is checked in the Journal Control File. If the status indicates that the journal extent has been opened by CICS since the last backup, the JCL for the journal is submitted for execution and the status of the journal extent is changed to JCL in progress.

This is the only test that will prevent CICS from overwriting a single extent journal before a backup has been completed. Since the JCL submission occurs at the time CICS is attempting to open the journal extent, this action will result in CICS having to wait until the JCL has completed before the open will be allowed. For this reason, we recommend that you don't use single extent journals for data that needs automatic archiving.

Journal Switch Processing

If the journal extent about to be opened is not the same as the previous extent opened for this journal, and the status of the previous extent indicates that it had been opened by CICS, the JCL for the previous journal extent is submitted for execution and the status of the previous journal extent is changed to JCL in progress.

This test will catch normal journal switching actions by CICS and will submit a backup for the journal that has just been filled.

Is the Journal Available ?

If the status of the journal extent about to be opened indicates that JCL is in progress, the Journal Open Exit will send a message to your System Console indicating that the journal extent is not yet available and will wait for a response.

The response to the "not available" message can be one of the following:

- | | |
|----------------|--|
| RETRY | Check the status again. This response should be given if the backup JCL completes after the message has been displayed. |
| OVERLAY | Don't wait for the backup to complete. This response allows CICS to open the journal extent as if the backup JCL had completed. Care should be taken in using this response. |

RESUBMIT Re-submit the backup JCL. This response can be used if the backup JCL has terminated for some reason. After the JCL is submitted, the same "not available" message will be displayed, and the Journal Open Exit will wait for your next response.

Remember this Journal

The Journal Control File is updated to reflect the current journal extent as being the one that is open. This will allow a future journal switch to be detected.

If CICS is not in Emergency Restart, the journal status is set to indicate that the journal has been opened by CICS and will require a backup at the next journal switch.

Emergency Restart Processing

If CICS is in Emergency Restart, the Journal Open Exit performs some additional processing to prevent unnecessary backups of your System Log and to ensure that your "X" extent is backed up.

Automatic Journal Switching

The Automatic Journal Switching Facility of FSI-JMASTER allows you to define when you want each of your CICS Journals to be switched and backed up.

Each time CICS opens a journal defined for Automatic Journal Switching, FSI-JMASTER uses the switching schedule that you have provided to determine when the next switch is required. A standard CICS START of a timed transaction is issued. When that started transaction executes, it issues a standard CEMT SET JOURNAL(nn) SWITCH transaction.

The Automatic Journal Switch will cause FSI-JMASTER to submit the Backup JCL defined for the journal, just as if a standard CICS journal switch had occurred.

If CICS switches the journal due to a full condition, or if the journal is closed or switched manually using CEMT, the Automatic Switch will be canceled. When the journal is reopened, a new Automatic Switch will be scheduled by FSI-JMASTER.

The Automatic Journal Switch will not be performed if the Journal Control File indicates that a Backup JCL is in progress for the journal. Instead, the Automatic Switch will be re-scheduled for the next specified time/interval.

Activating Automatic Journal Switching

The LOAD SCHEDULE Command is used to define the switching schedule for each day of the week. Special switching schedules can also be specified for holidays. You can specify as many Switching Schedules as you need.

If you want FSI-JMASTER to use special switching intervals for holidays, you must provide a "Holiday Table" that defines your installation's holidays. Refer to Appendix B for detailed information on how to generate a "Holiday Table".

Within each day of a SCHEDULE, you can specify that switching is to occur at specific intervals using the EVERY Operand, or at specific times using the TIMES Operand. When using the TIMES Operand, you can prevent Automatic Switching from occurring too close to manual or CICS originated switches by using the MINIMUM Operand.

For each CICS Journal that you want to have automatically switched by FSI-JMASTER, you specify the name of the SCHEDULE via the AUTOSWITCH(schedulename) Operand of the DEFINE JOURNAL or ALTER JOURNAL Commands.

You can print all or selected SCHEDULE definitions using the PRINT SCHEDULE or PRINT ALL Commands.

SCHEDULE definitions that are no longer needed can be deleted with the DELETE SCHEDULE Command.

To remove Automatic Switching for any CICS Journal, you specify AUTOSWITCH(NONE), which is the default.

You can turn Automatic Switching ON and OFF by specifying AUTOSWITCH(name,ON) or AUTOSWITCH(name,OFF) in an ALTER JOURNAL Command. After you turn Automatic Switching OFF, to reactivate it, you must set it ON, and then cause a CICS journal switch to occur. The journal switch will cause the next Automatic Switch to be scheduled by FSI-JMASTER.

You can SUSPEND Automatic Switching by specifying AUTOSWITCH(name,SUSPEND) in an ALTER JOURNAL Command. This is similar to turning it OFF, except that FSI-JMASTER continues to schedule Automatic Switches in anticipation that you will be turning Automatic Switching back ON. You do not need to cause a CICS journal switch to occur to reactivate Automatic Switching when you use the SUSPEND Operand.

Refer to section "Commands and Operands" for detailed information on each of these Commands.

Automatic Timeout Facility

The Automatic Timeout Facility of FSI-JMASTER is an early warning system that notifies your Computer Operator or some other CICS user that a required journal backup has not completed. The purpose of this facility is to prevent CICS from being suspended if it switches to a journal that has not been backed up.

For each of your CICS journals, you specify how long it should normally take for the Backup JCL to complete and what action you want FSI-JMASTER to initiate if the Backup does not complete within the specified time. This is accomplished using the TIMEOUT Operand of the DEFINE JOURNAL or ALTER JOURNAL Commands. Each time FSI-JMASTER submits the Backup JCL, it starts a timed transaction for the interval you have specified. If the Backup JCL has not completed by that interval, FSI-JMASTER will take the additional action that you have specified.

The additional actions that you can specify are:

- Submit a specific JCL member from the Journal Control file.
- Start a specified CICS Transaction on a specified CICS terminal.
- Display a message (FSIJMSTR-140) on the System Console that asks the Operator what action should occur.

Refer to the TIMEOUT Operand for more information.

Commands and Operands

Parameter cards must be supplied to program CSIJMSTR to create, alter and delete journal and JCL definitions on the Journal Control File. The parameter cards (Commands) are read from a SYSIN DD statement.

Syntax

The syntax of CSIJMSTR's Commands is the same as the one used by the IBM utility IDCAMS:

- A **Command followed by keyword Operands**, with the value to be assigned to a keyword specified in parentheses.
- **Blanks** or **commas** are used to separate Operands from the Command and from other Operands.
- **Continuation** is specified by coding a dash as the last non-blank on the line to be continued.
- **Comments** may appear before, between, and/or after Operands.
- A **comment** starts with the characters "/*", is ended by the characters "*/", and may be continued to multiple lines as needed.

In the following instructions, the FSI-RECOV Commands and Operands should be interpreted as follows:

- UPPER CASE = the exact characters to be entered
- lower case = values to be supplied by you
- **boldface/underlined** keywords or values = default values
- Vertical bar "|" separates mutually exclusive Operands
- [values enclosed in brackets] are optional

Refer to Appendix A for a more complete description of how to code Commands and Operands.

Commands

The Commands that are used in CSIJMSTR are the following:

1. **ALTER JOURNAL** Alter CICS Journal definitions on the Journal Control File.
2. **DEFINE JOURNAL** Create new CICS Journal definitions on the Journal Control File.
3. **DELETE** Delete CICS Journal, JCL and SCHEDULE definitions from the Journal Control File.
4. **LOAD JCL** Create or replace JCL definitions on the Journal Control File.
5. **LOAD SCHEDULE** Create or replace SCHEDULE definitions on the Journal Control File.
6. **NOTIFY** Update the status of CICS Journal definitions on the Journal Control File.
7. **OPTION** Set processing options for CSIJMSTR.
8. **PRINT** Generate Hard-copy output of CICS Journal, JCL, and/or SCHEDULE definitions.
9. **SUBMIT** Submit JCL member from batch.

Please see the following pages for detailed descriptions of all Commands/Operands.

ALTER JOURNAL Command

The ALTER JOURNAL Command is used to change an existing CICS Journal definition in the Journal Control File.

Refer to the DEFINE JOURNAL Command for information on how to add a new CICS Journal definition to the Journal Control File.

How to enter

```

ALTER JOURNAL(applid/jid) -
      [AUTOSWITCH( { NONE
                    | schedulename, [ ON
                                       | OFF
                                       | SUSPEND ] } ) -]
      [JCL(jclname) -]
      [JDSN-A(journal.a.dataset.name) -]
      [JDSN-B(journal.b.dataset.name) -]
      [JDSN-X(journal.x.dataset.name) -]
      [STAT-A(AVAILABLE | JCL | OPEN | ERROR) -]
      [STAT-B(AVAILABLE | JCL | OPEN | ERROR) -]
      [STAT-X(AVAILABLE | JCL | OPEN | ERROR) -]
      [SHUTDOWN | NOSHUTDOWN -]
      [TIMEOUT( -
        h:mm/h:mm/h:mm -
        WTO | JCL(jclname) | START(tran[, term]) -
        )]

```

Explanation

JOURNAL(applid/jid)

Required. Specifies the CICS APPLID and JID for the journal that is being altered.

The CICS System log can either be specified as a JID of 01 or by the special name SYSTEM.

$$\text{AUTOSWITCH} \left(\begin{array}{l} \text{NONE} \\ \text{schedulename, } \left[\begin{array}{l} \text{ON} \\ \text{OFF} \\ \text{SUSPEND} \end{array} \right] \end{array} \right)$$

This operand can be used to alter the name of the SCHEDULE definition that should be used to determine when the journal should be automatically switched by FSI-JMASTER. If NONE is specified, no automatic switches will be performed.

The schedulename specified here must match the name of one of the SCHEDULE definitions loaded via a LOAD SCHEDULE Command.

The ON, OFF and SUSPEND Sub-Operands can be used to control the Online actions of the Automatic Switching feature of FSI-JMASTER.

OFF Specifies that the Automatic Switching feature is not desired. If any Automatic Switch is currently scheduled in CICS, it will be ignored when its time interval expires, and no new Automatic Switch will be scheduled.

To restart Automatic Switching, you must change the status to ON, and cause a journal switch in CICS.

SUSPEND Is similar to OFF in that no Automatic Switch will occur in CICS, but differs from OFF in that new Automatic Switches will be scheduled by FSI-JMASTER with the assumption that the status will be changed to ON in the near future.

JCL(jclname)

This operand can be used to alter the name of the JCL that should be submitted when any of the extents for this JOURNAL are filled by CICS.

The jclname specified here must match the name of one of the JCL members loaded via a LOAD JCL Command.

JDSN-A(journal.a.dataset.name)
 JDSN-B(journal.b.dataset.name)
 JDSN-X(journal.x.dataset.name)

These operands are used to alter the dataset names for each extent of the specified JOURNAL.

These values are automatically updated in the Journal Control File each time the JOURNAL is opened by CICS. These operands can be specified to allow the SUBMIT Command to be used prior to the first open by CICS.

SHUTDOWN | **NOSHUTDOWN**

This operand can be used to control whether or not FSI-JMASTER will automatically submit a journal backup job at normal CICS shutdown.

The default is not to submit the journal backup at CICS shutdown.

STAT-A(**AVAILABLE** | JCL | OPEN | ERROR)
 STAT-B(**AVAILABLE** | JCL | OPEN | ERROR)
 STAT-X(**AVAILABLE** | JCL | OPEN | ERROR)

These operands can be used to alter the status for each extent of the specified JOURNAL.

The CICS open exit uses this status to determine if the journal is available to use, or needs to have the JCL submitted for backup.

The status fields should only need to be altered in an error recovery situation. The normal method for controlling the journal status is via the NOTIFY Command.

One of the following status values can be set for each journal extent ...

AVAILABLE The journal extent has been backed up and is available for reuse by CICS.

JCL The JCL has been submitted for execution, but the NOTIFY Command has not been received indicating that the backup has completed.

OPEN	The journal extent has been opened by CICS and will require a backup at the next journal switch operation by CICS.
ERROR	The submitted JCL has completed with a NOTIFY Command that indicates that some type of error has occurred. The journal is considered not available to CICS until the error has been corrected.

```
TIMEOUT( h:mm/h:mm/h:mm  
        WTO|JCL(jclname)|START(tran[,term])  
        )
```

These operands can be used to alter the processing that should occur if the submitted JCL has not completed within a specified amount of time.

h:mm/h:mm/h:mm specifies the amount of time that the JCL should take to complete. The specified times are for journal extents **A/B/X**

One of the following actions can be specified ...

WTO Send a message to the System Console and request an action from the operator.

JCL(jclname)
Submit the specified JCL member from the Journal Control File.

START(tran[,term])
Start the specified CICS Tran ID on the specified CICS Term ID.

DEFINE JOURNAL Command

The DEFINE JOURNAL Command is used to add a new CICS journal definition to the Journal Control File.

FSI-JMASTER will only monitor and back up CICS journals that are defined in the Journal Control File.

How to enter

```

DEFINE JOURNAL(applid/jid)           -
      JCL(jclname)                   -
      [AUTOSWITCH( { NONE
                    { schedulename, [ ON
                                       OFF
                                       SUSPEND ] } )           -]
      [JDSN-A( journal.a.dataset.name) -]
      [JDSN-B( journal.b.dataset.name) -]
      [JDSN-X( journal.x.dataset.name) -]
      [SHUTDOWN | NOSHUTDOWN         -]
      [TIMEOUT(                          -
        h:mm/h:mm/h:mm                   -
        WTO | JCL(jclname) | START(tran[ , term] ) -]
      ) ]

```

Explanation

JOURNAL(applid/jid)

Required. Specifies the CICS APPLID and JID for the journal that is being defined.

The CICS journal open/close exits will check the Journal Control File for a matching APPLID/JID. If none is found, the CICS journal will not be monitored and no backup JCL will be submitted.

The CICS System log can either be specified as a JID of 01 or by the special name SYSTEM.

$$\text{AUTOSWITCH} \left(\left. \begin{array}{l} \text{NONE} \\ \text{schedulename, } \left[\begin{array}{l} \text{ON} \\ \text{OFF} \\ \text{SUSPEND} \end{array} \right] \end{array} \right\} \right)$$

This operand can be used to specify the name of the SCHEDULE definition that should be used to determine when the journal should be automatically switched by FSI-JMASTER. If NONE is specified, no automatic switches will be performed.

The schedulename specified here must match the name of one of the SCHEDULE definitions loaded via a LOAD SCHEDULE Command.

The ON, OFF and SUSPEND Sub-Operands can be used to control the Online actions of the Automatic Switching feature of FSI-JMASTER.

OFF Specifies that the Automatic Switching feature is not desired. If any Automatic Switch is currently scheduled in CICS, it will be ignored when its time interval expires, and no new Automatic Switch will be scheduled.

To restart Automatic Switching, you must change the status to ON, and cause a journal switch in CICS.

SUSPEND Is similar to OFF in that no Automatic Switch will occur in CICS, but differs from OFF in that new Automatic Switches will be scheduled by FSI-JMASTER with the assumption that the status will be changed to ON in the near future.

JCL(jclname)

Required. Specifies the name of the JCL that should be submitted when any of the extents for this JOURNAL are filled by CICS.

The jclname specified here must match the name of one of the JCL members loaded via a LOAD JCL Command.

```
JDSN-A( journal.a.dataset.name )
JDSN-B( journal.b.dataset.name )
JDSN-X( journal.x.dataset.name )
```

These operands are optional. They specify the dataset names for each extent of the specified JOURNAL.

These values are automatically updated in the Journal Control File each time the JOURNAL is opened by CICS. These operands can be specified to allow the SUBMIT Command to be used prior to the first open by CICS.

SHUTDOWN | **NOSHUTDOWN**

This operand can be used to control whether or not FSI-JMASTER will automatically submit a journal backup job at normal CICS shutdown.

The default is not to submit the journal backup at CICS shutdown.

```
TIMEOUT( h:mm/h:mm/h:mm
          WTO|JCL(jclname) | START(tran[,term])
        )
```

These operands can be used to specify special processing that should occur if the submitted JCL has not completed within a specified amount of time.

h:mm/h:mm/h:mm specifies the amount of time that the JCL should take to complete. The specified times are for journal extents **A/B/X**

One of the following actions can be specified ...

WTO Send a message to the System Console and request an action from the operator.

JCL(jclname)
Submit the specified JCL member from the Journal Control File.

START(tran[,term])
Start the specified CICS Tran ID on the specified CICS Term ID.

If this operand is omitted, the following is assumed:

TIMEOUT(0:10/0:10/0:10 WTO)

DELETE Command

The DELETE Command is used to delete JOURNAL definitions, JCL members, and/or SCHEDULE definitions from the Journal Control File.

Once a JOURNAL definition is deleted from the Journal Control File, the CICS Journal open exit will no longer monitor the status of the journal.

How to enter

```
DELETE JOURNAL(applid/jid)

DELETE JCL(jclname)

DELETE SCHEDULE(schedulename)
```

Explanation

JOURNAL(applid/jid)

Specifies that a journal definition is to be deleted from the Journal Control File.

The CICS System log can either be specified as a JID of 01 or by the special name SYSTEM.

JCL(jclname)

Specifies the name of the JCL member that should be deleted from the Journal Control File.

The jclname specified here must match the name of one of the JCL members loaded via a LOAD JCL Command.

SCHEDULE(schedulename)

Specifies the name of the SCHEDULE definition that should be deleted from the Journal Control File.

The schedulename specified here must match the name of one of the SCHEDULE definitions loaded via a LOAD SCHEDULE Command.

LOAD JCL Command

The LOAD JCL Command is used to add or replace a jobstream in the Journal Control File. Once loaded, the jobstream is then available for the SUBMIT process.

The JCL to be stored in the Journal Control File may be placed immediately after the LOAD JCL Command, with special characters to disguise it from MVS job-control.

How to enter

```
LOAD JCL(jclname)           -
  [COL1(%|x)]               -]
  [DELIM[(%|xx)]           -]
  [DESC('optional jcl description')] -]
  [IDSN(dataset[(member)]] -]
  [IFILE(ddname)]          -]
  [KEYWORDID(%|x)]         -]
  [SHIFT(<,71)]
```

Explanation

JCL(jclname)

Required. Specifies the name that the JCL should be given in the Journal Control File. The name can be 1 to 8 alphanumeric characters.

If you specify the name of an existing JCL member in the Journal Control File, it will be replaced by the current JCL.

The JCL name is used for subsequent submission or maintenance.

COL1(%|x)

If the JCL to be loaded follows this command in the SYSIN file, this operand can be used to specify the character that you used to disguise the JCL from job-control.

CSIJMSTR will look for the character 'x' in column 1 of each line of JCL, and replace it with a '/' or '*' as appropriate (depends on columns 2-4).

The COL1 processing is performed before SHIFT processing.

DELIM[(%%|xx)]

If the JCL to be loaded follows this command in the SYSIN file, this operand must be specified. It provides the characters that you used to indicate the end of the JCL. Any two characters can be specified, as long as they do not appear as the first two characters in any line of JCL.

A separate input line containing these two characters in columns 1 and 2 must follow the last line of JCL.

This operand is mutually exclusive with the following operands ...

IDSN **IFILE**

DESC('optional jcl description')

This operand can be used to supply an optional name for the JCL you are loading. Up to 40 characters of description can be specified.

This description will be printed if the JCL is printed using a PRINT JCL Command.

IDSN(dataset[(member)])

This operand can be used to specify the dataset(member) name where the JCL is contained.

CSIJMSTR will copy the JCL from the dataset(member) name specified here, to the Journal Control File.

This operand is mutually exclusive with the following operands ...

IFILE **DELIM**

IFILE(ddname)

This operand can be used to specify the DDNAME of the DD statement that defines the dataset(member) where the JCL is contained.

CSIJMSTR will copy the JCL from the dataset(member) defined here, to the Journal Control File.

This operand is mutually exclusive with the following operands ...

IDSN **DELIM**

KEYWORDID(% | x)

The JCL statements provided to CSIJMSTR can contain special 'System Variables' that CSIJMSTR will use at SUBMIT time to generate that actual jobstream. These 'System Variables' are identified by a leading character that can be overridden via this operand.

SHIFT(<, 71)

If the JCL to be loaded follows this command in the SYSIN file, this operand can be used to specify the character and shift area that you used to disguise the JCL from job-control.

If this operand is specified, CSIJMSTR will look for the character '<' in column 1 of each line of JCL, and shift columns 2-71 to columns 1-70, and put a space in column 71. You can specify any character you want for '<' and any ending column for the shift.

The COL1 processing is performed before SHIFT processing.

JCL System Variables

FSI-JMASTER provides a series of "System Variables" that you can use to create JCL that FSI-JMASTER will tailor to the particular CICS Journal and environment at the time it is submitted for execution.

System variables can be specified in any combination and at any location in the JCL. The following table lists the System Variables and what they generate:

Variable name	Description	Length
%ABX	Current journal extent (A/B/X)	1 char.
%APPLID	Current CICS APPLID	1-8 char.
%CFDSN	Dataset name of Journal Control File	1-44 char.
%CICSJOB	Current CICS Job name	1-8 char.
%CICSREL	Current CICS release (1.7)	3 char.
%DATEJ	Current date (yy/ddd)	6 char.
%DATEDMY	Current date (dd/mm/yy)	8 char.
%DATEMDY	Current date (mm/dd/yy)	8 char.
%DATEYMD	Current date (yy/mm/dd)	8 char.
%DTEJ	Current date (yyddd)	5 char.
%DTEDMY	Current date (ddmmyy)	6 char.
%DTEMDY	Current date (mmddy)	6 char.
%DTEYMD	Current date (yymmdd)	6 char.
%JCLDESC	JCL description from DESC Operand of LOAD JCL	1-40 char.
%JCLNAME	JCL member name	1-8 char.
%JDSN	Dataset name of current journal extent	1-44 char.
%ZJID	Current JID (zero suppressed)	1-2 char.
%JID	Current JID (01-99)	2 char.
%SYSID	Current CICS System ID	1-4 char.
%TIME1	Current time (hhmm)	4 char.
%TIME2	Current time (hhmmsst)	7 char.
%TIME3	Current time (hh:mm)	5 char.
%TIME4	Current time (hh:mm:ss.t)	10 char.
%UPDATE	UPDATE/NOUPDATE from SUBMIT Command	6/8 char.

For the following example, the values for the specified System Variables are assumed to be:

%ABX	A
%APPLID	PRODCICS
%CFDSN	CSIJMSTR.CONTROL.FILE
%JDSN	CICS.JOURNAL.J02.A
%JID	02
%UPDATE	UPDATE

JCL before variable substitution

```
//backup JOB
//*
/*      BACKUP CICS JOURNAL DATASETS
/*
//step1 EXEC PGM=CSIJMSTR
//STEPLIB DD DSN=your.load.lib,DISP=SHR
//RLNJMS DD DSN=%CFDSN,DISP=SHR
//SYSPRINT DD SYSOUT=*
//SYSIN DD *
OPTION %UPDATE
NOTIFY JOURNAL(%APPLID/%JID/%ABX) -
      EVENT(BACKUP START)
/*
//step2 EXEC PGM=CSIRECOV
//STEPLIB DD DSN=your.load.lib,DISP=SHR
//journal DD DSN=%JDSN,DISP=SHR
//backup DD DSN=backup.%APPLID.J%JID.%ABX,
      DISP=(NEW,CATLG),
      UNIT=TAPE,DCB=BLKSIZE=8192
//SYSPRINT DD SYSOUT=*
//SYSIN DD *
INPUT JOURNAL(journal) SORT
OUTPUT BACKUP(backup)
/*
//step3 EXEC PGM=CSIJMSTR
//STEPLIB DD DSN=your.load.lib,DISP=SHR
//RLNJMS DD DSN=%CFDSN,DISP=SHR
//SYSPRINT DD SYSOUT=*
//SYSIN DD *
OPTION %UPDATE
NOTIFY JOURNAL(%APPLID/%JID/%ABX) AVAILABLE -
      EVENT(BACKUP END)
/*
//
```

JCL after variable substitution

```
//backup JOB
//*
//*      BACKUP CICS JOURNAL DATASETS
//*
//step1 EXEC PGM=CSIJMSTR
//STEPLIB DD DSN=your.load.lib,DISP=SHR
//RLNJMS DD DSN=CSIJMSTR.CONTROL.FILE,DISP=SHR
//SYSPRINT DD SYSOUT=*
//SYSIN DD *
OPTION UPDATE
NOTIFY JOURNAL( PRODCICS/02/A) -
      EVENT(BACKUP START)
/*
//step2 EXEC PGM=CSIRECOV
//STEPLIB DD DSN=your.load.lib,DISP=SHR
//journal DD DSN=CICS.JOURNAL.J02.A,DISP=SHR
//backup DD DSN=backup.PRODCICS.J02.A,
           DISP=(NEW,CATLG),
           UNIT=TAPE,DCB=BLKSIZE=8192
//SYSPRINT DD SYSOUT=*
//SYSIN DD *
INPUT JOURNAL(journal) SORT
OUTPUT BACKUP(backup)
/*
//step3 EXEC PGM=CSIJMSTR
//STEPLIB DD DSN=your.load.lib,DISP=SHR
//RLNJMS DD DSN=CSIJMSTR.CONTROL.FILE,DISP=SHR
//SYSPRINT DD SYSOUT=*
//SYSIN DD *
OPTION UPDATE
NOTIFY JOURNAL( PRODCICS/02/A) AVAILABLE -
      EVENT(BACKUP END)
/*
//
```

Note: In this example we are using FSI's Recovery System FSI-RECOV to backup the CICS Journal. You can use IDCAMS or any utility you want to backup the journal.

LOAD SCHEDULE Command

The LOAD SCHEDULE Command is used to add or replace a schedule definition in the Journal Control File. Once loaded, the schedule definition can be referenced by the AUTOSWITCH Operand of the DEFINE JOURNAL and/or ALTER JOURNAL Commands.

How to enter

```
LOAD SCHEDULE(schedulename)           -
      [DESC('optional schedule description')] -]
      [dayofweek(NONE)]                 -]
      [dayofweek(EVERY(hh:mm))]         -]
      [dayofweek(TIMES(hh:mm/hh:mm,...), -]
      [      MINIMUM(hh:mm)]            -]
      [      )]                          ]
```

Explanation

SCHEDULE(schedulename)

Required. Specifies the name that the SCHEDULE should be given in the Journal Control File. The name can be 1 to 8 alphanumeric characters.

If you specify the name of an existing SCHEDULE definition in the Journal Control File, it will be replaced by the current SCHEDULE.

The SCHEDULE name is used for the AUTOSWITCH Operand of the DEFINE JOURNAL and ALTER JOURNAL Commands.

DESC('optional schedule description')

This operand can be used to supply an optional name for the SCHEDULE you are loading. Up to 40 characters of description can be specified.

This description will be printed if the SCHEDULE is printed using a PRINT SCHEDULE Command.

dayofweek(...)

A separate switching schedule can be provided for each day of the week, and a special schedule for holidays. The valid names for 'dayofweek' are:

SUNDAY
MONDAY
TUESDAY
WEDNESDAY
THURSDAY
FRIDAY
SATURDAY
DEFAULT
HOLIDAY

The schedule for DEFAULT will be used for any days not specifically defined.

The schedule for HOLIDAY will be used for any day defined as a holiday at your installation. The holiday schedule will override any schedule for a specific 'dayofweek.' Refer to section "Automatic Journal Switching" and "Appendix B" for more information on holidays.

NONE

This operand can be used to specify that no automatic switching is to occur for the specified 'dayofweek'.

This Operand cannot be used if EVERY or TIMES is specified.

EVERY (hh:mm)

This operand can be used to specify that automatic switching is to occur at a specific time interval, based on when the CICS Journal is opened.

Each time the CICS Journal is opened on the specified 'dayofweek', an automatic switch will be scheduled for the 'current time' plus the interval specified here.

If the resulting time is after 24:00:00, the first specified time/interval for the next 'dayofweek' will be used.

This Operand cannot be used if NONE or TIMES is specified.

TIMES(hh:mm[/hh:mm], ...)

This operand can be used to specify that automatic switching is to occur at specific times during the 'dayofweek'.

The times are specified as a 'base time' followed by an optional 'interval'. From 1 to 10 time/interval pairs can be specified. If more than one is specified, they must be in ascending time sequence.

Times are specified in 24-hour format, 24:00 representing mid-night.

The 'interval' values are used by FSI-JMASTER to calculate additional times between 'base times' as follows:

TIMES(8:00/0:30,10:00,11:00/1:00,18:00)

schedule times =	0800	0830	0900	0930
	1000	1100	1200	1300
	1400	1500	1600	1700
	1800			

Each time the CICS Journal is opened on the specified 'dayofweek', an automatic switch will be scheduled for the first 'schedule time' that is greater than the 'current time' Refer to the MINIMUM Operand for an exception to this rule.

If the 'current time' is greater than the last 'schedule time', the first specified time/interval for the next 'dayofweek' will be used.

This Operand cannot be used if NONE or EVERY is specified.

MINIMUM(hh:mm)

This operand can only be used in conjunction with the TIMES Operand. It specifies a minimum time interval that should elapse between the time a journal is opened and the next scheduled Automatic Journal Switch.

If a MINIMUM is specified, FSI-JMASTER will select the first 'schedule time' that is equal to or greater than the 'journal open time' plus the MINIMUM.

Example:

```
TIMES(12:00,13:00,14:00)
MINIMUM(0:30)
```

If the CICS journal is opened at 12:30, the next Automatic Switch will be scheduled for 13:00.

If the CICS journal is opened at 12:31, the next Automatic Switch will be scheduled for 14:00.

Example

```
LOAD SCHEDULE(SAMPLE) -
DESC('SAMPLE SCHEDULE') -
SATURDAY(NONE) -
SUNDAY(NONE) -
WEDNESDAY(EVERY(1:00)) -
DEFAULT(TIMES(8:00/1:00,18:00), -
MINIMUM(0:30) -
)
```

- The name of this SCHEDULE definition is 'SAMPLE'.
- No Automatic Switches are to be scheduled for SATURDAY's or SUNDAY's.
- Automatic Switches should occur at 1 hour intervals on WEDNESDAY's.
- For all other days, Automatic Switches should occur from 8:00 to 18:00 on the hour, but not closer than 30 minutes from a manual or CICS initiated switch.

NOTE: Automatic Switches will only be performed for CICS Journals that have been defined to FSI-JMASTER with the AUTOSWITCH Operand of the DEFINE JOURNAL or ALTER JOURNAL Commands.

NOTIFY Command

The NOTIFY Command is used to update the status of a journal definition in the Journal Control File and to log event records for actions occurring on the journal.

When the CICS Journal open/close exit submits a JCL member for execution, it marks the CICS Journal as "unavailable" for further on-line processing. The JCL member must issue a NOTIFY Command with the AVAILABLE Operand when it has completed its processing or CICS will not be able to reuse the journal.

The CICS Journal open/close exits (CSIXJCO and CSIXJCC), automatically generate NOTIFY EVENT's for the following:

- Each time an AUTOSWITCH occurs
- Each time CICS opens or closes a journal
- Each time a Backup JCL is submitted
- Each time an Automatic Timeout expires before the Backup JCL completes.

You can use the NOTIFY Command in your CICS startup JCL or in the Backup JCL to log additional Journal EVENT's, for the following:

- CICS Startups and Shutdowns
- Journal Backups
- Journal formatting
- Errors occurring in Backup JCL

How to enter

```
NOTIFY JOURNAL(applid/jid/abx)           -  
      [AVAILABLE                         -]  
      [EVENT(function action)]
```

Explanation

JOURNAL(applid/jid/abx)

Required. Specifies the CICS APPLID, JID and the journal extent of the journal definition from the Journal Control File that the NOTIFY applies to.

The CICS System log can either be specified as a JID of 01 or by the special name SYSTEM.

AVAILABLE

Specifies that the CICS Journal is available for CICS to reuse when needed.

EVENT(function action)

Specifies the EVENT that the NOTIFY is to record.

EVENTS are defined as a function and action. The following table shows the valid EVENT functions:

BACKUP	Journal backup
CICS	Used to log CICS startup/shutdown
FORMAT	Journal format
JOURNAL	Used to log CICS journal open/close
SUBMIT	JCL submission
WARNING	The "Timeout" limit expired before the backup was completed.

The following table shows the valid EVENT actions:

CLOSE	The journal is being closed
START	The event is starting
OPEN	The journal is being opened
END	The event has just ended
ERROR	The event completed in error

OPTION Command

The OPTION Command is used to specify special processing options for CSIJMSTR.

How to enter

```
OPTION -
  [ CFNAME ( RLNJMS | xxxxxxxx )                - ]
  [ INITIALIZE                                     - ]
  [ NOTOLERATE | TOLERATE ( 12 | nn )           - ]
  [ SETCOND ( string , mask , eqcond , necond )   - ]
  [ UPDATE | NOUPDATE                             - ]
  [ UPGRADE                                       ]
```

Explanation

CFNAME (RLNJMS | xxxxxxxx)

CFNAME specifies the DDNAME that will be used to access the Journal Control File. If this option is omitted, a DDNAME of RLNJMS will be used. This option must be specified prior to any other commands.

INITIALIZE

INITIALIZE specifies that the Journal Control File is to be opened for "reset" and a "dummy" record is to be added and deleted. The INITIALIZE function is performed as part of the Installation procedure. This OPTION is required whenever a "new" Journal Control File is being created.

NOTOLERATE | TOLERATE (12 | nn)

NOTOLERATE causes CSIJMSTR to terminate processing if any errors are detected in the input Commands.

TOLERATE allows processing to continue in CSIJMSTR even if errors are detected in the input Commands. If a tolerate value is specified, it represents the maximum condition code that will allow processing to continue. Each error message has an associated condition code. Refer to the section "Messages".

```
SETCOND(string,mask,eqcond,necond)
```

This Operand can be used to set the Jobstep Return/Condition code to one of two values depending on the comparison between a character string and a generic mask.

The OPTION SENDCOND Command will normally be used as part of a CSIJMSTR Jobstep in a Backup JCL member. FSI-JMASTER Substitution variables can be used for either the 'string' and/or the 'mask' values.

'string' and 'mask' can be up to 60 bytes long. They must be enclosed in single quotes if they contain spaces.

'eqcond' and 'necond' must be numeric from 0 to 255. 'eqcond' is the condition code that will be used if 'string' equals 'mask'. 'necond' is the condition code that will be used if 'string' does not equal 'mask'.

'mask' is a generic string that uses the same rules as the CICS CEMT transaction. '*' can be used to represent 'any number of characters', and '+' can be used to represent 'any single' character.

Examples:

```
OPTION SETCOND(%ABX,B,16,0)
```

If the current journal extent is 'B', set the condition code to 16, else set it to 0.

```
OPTION SETCOND(%JDSN,'*TEST*',16,8)
```

If the current journal dataset name contains the name 'TEST', set the condition code to 16, else set it to 8.

If the OPTION SETCOND Command is used in conjunction with other FSI-JMASTER Commands, the Condition code will not be set if it is less than the existing condition code from any previous FSI-JMASTER Command.

UPDATE | NOUPDATE

NOUPDATE specifies that the commands entered for this execution of CSIJMSTR should only be checked for syntax. The Journal Control File will not be updated. This option must be specified prior to any other commands.

If NOUPDATE is specified for a LOAD JCL Command with in-stream JCL, error messages will be generated indicating that the in-stream data is not recognized as valid Commands.

UPGRADE

UPGRADE specifies that all definitions in the Journal Control File are to be read and converted to the format of the current release of FSI-JMASTER and the current CISIZE of the Journal Control File.

The UPGRADE function must be performed as part of a migration from one release of FSI-JMASTER to another. The UPGRADE function must also be performed if you change the CISIZE of your Journal Control File.

Refer to section "Installation" for more information.

PRINT Command

The PRINT Command is used to generate a hard-copy printout of JOURNAL definitions, JCL members and/or SCHEDULE definitions from the Journal Control File.

The PRINT Command can also be used to generate a hard-copy printout of the holidays specified in your FSI-JMASTER Holiday Table 'CSIHDY00'.

How to enter

```
PRINT JOURNAL(applid/jid)

PRINT JCL(jclname)

PRINT SCHEDULE(schedulename)

PRINT ALL

PRINT ALL(JOURNAL,JCL,SCHEDULE)

PRINT ALL(JOURNAL(applidmask,fromjid,tojid)      -
          JCL(namemask)                          -
          SCHEDULE(namemask)                     -
          )

PRINT HOLIDAYS[ (CSIHDY00 |xxxxxxxx) ] [YEAR(nnnn)]
```

Explanation

JOURNAL(applid/jid)

Specifies the CICS APPLID and JID of the journal definition from the Journal Control File that is to be printed.

The CICS System log can either be specified as a JID of 01 or by the special name SYSTEM.

JCL(jclname)

Specifies the name of the JCL member from the Journal Control File that is to be printed.

SCHEDULE (schedulename)

Specifies the name of the SCHEDULE definition from the Journal Control File that is to be printed.

ALL

Specifies that ALL JOURNAL, JCL and SCHEDULE definitions contained in the Journal Control File are to be printed.

ALL (JOURNAL , JCL , SCHEDULE)

Specifies that ALL definitions of the specified type(s) are to be printed. Any combination of JOURNAL, JCL and/or SCHEDULE definitions can be specified.

```
ALL ( JOURNAL ( applidmask , fromjid , tojid )           -
      JCL ( namemask )                                 -
      SCHEDULE ( namemask )                            -
    )
```

Specifies that selected definitions of the specified type(s) are to be printed. Any combination of JOURNAL, JCL and/or SCHEDULE definitions can be specified.

The values for 'applidmask' and 'namemask' are generic masks using the same rules as the CICS CEMT transaction. '*' can be used to represent 'any number of characters', and '+' can be used to represent 'any single' character.

'fromjid' and 'tojid' represent a range of journal IDs to be printed from the selected CICS APPLids.

HOLIDAYS [(CSIHDY00 | xxxxxxxx)]

Specifies the name of the HOLIDAY table from which holidays should be printed.

YEAR (nnnn)

Can be specified on a PRINT HOLIDAY Command to indicate for which year the holidays should be printed. If omitted, the current year will be used.

Any year from 1961 to 2060 can be specified.

PRINT JOURNAL Output

```

1  DEDCCICS/1  JCL: JOB01      TIMEOUT ACTION: START TRANSID UTRN ON TERMID MSTR
2  DEFINED: 88/01/01 12:01:01.0  AUTOSWITCH: NONE  AUTO SWITCH IS OFF
3  JOURNAL AT SHUTDOWN: YES
4  ALTERED: 88/05/10 14:31:20.5
5
6  CURRENT STATUS----- DATASET NAME----- TIMEOUT
7  A: AVAILALE           DEDCCICS.JOURNAL.DFHJ01A           0.15
8  B: OPEN TO CICS       DEDCCICS.JOURNAL.DFHJ01B           0.10
9  X: JCL ENDED WITH ERROR DEDCCICS.JOURNAL.DFHJ01X           0.05
10
11  EVENT HISTORY -----
12
13  A: 88/05/15 10:28:33.0 CICS JOURNAL CLOSE
14  A: 88/05/15 10:28:33.9 SUBMIT JCL START
15  A: 88/05/15 10:28:35.0 SUBMIT JCL END
16  B: 88/05/15 10:28:36.0 CICS JOURNAL OPEN
17  A: 88/05/15 10:28:40.1 JOURNAL BACKUP START
18  A: 88/05/15 10:30:19.7 JOURNAL BACKUP END
19  A: 88/05/15 10:30:30.2 JOURNAL FORMAT START
20  A: 88/05/15 10:32:31.6 JOURNAL FORMAT END

```

- Line 1:**
- CICS APPLID/JID of the journal being printed.
 - Name of the JCL member to submit for backups.
 - Timeout action to occur if the backup does not complete within the specified amount of time:

<pre> MESSAGE TO OPERATOR SUBMIT JCL jclname START TRANSID xxxxx START TRANSID xxxxx ON TERMID yyyy </pre>	<pre> Issue message to System Console. Submit a specified JCL member. Start a specified CICS transaction. Start a specified CICS transaction on a specified terminal. </pre>
--	--

- Line 2:**
- Date and Time that the Journal was first defined on the Journal Control File.
 - Name of the SCHEDULE definition used to control Automatic Journal Switches. 'NONE' indicates that no Automatic Journal Switches will be performed by FSI-JMASTER.
 - Status of Automatic Switching. 'ON', 'OFF', or 'SUSPENDED'. Automatic Switching will only occur if the status is 'ON'.

Line 3: • Specifies whether or not a journal backup will be submitted at normal CICS shutdown.

Line 4: • Date and Time that the Journal definition was last modified via an ALTER JOURNAL Command.

Lines 6 through 9:

- Current status of each extent (A/B/X)

AVAILABLE	The journal extent has been backed up and is available for reuse by CICS.
OPEN TO CICS	The journal extent has been opened by CICS and will require a backup at the next journal switch operation by CICS.
JCL IN PROGRESS	The JCL has been submitted for execution, but the NOTIFY Command has not been received indicating that the backup has completed.
JCL ENDED WITH ERROR	The submitted JCL has completed with a NOTIFY Command that indicates that some type of error has occurred. The journal is considered not available to CICS until the error has been corrected.

- Dataset name of each extent (A/B/X)
- Timeout wait interval specified for each extent (A/B/X)

Lines 11 through nnn:

- The remainder of the report contains the "Event History" for the specified journal. The size of the history is dependant on the CISIZE chosen for the Journal Control File during the installation of FSI-JMASTER.

The "Event History" is printed in chronological sequence, from oldest to newest.

Each line of the "Event History" contains the journal extent (A/B/X), the date and time that the event occurred, and a description of the event.

Refer to the NOTIFY Command for a description of the "Events" that can be logged.

PRINT JCL Output

```

1  JOB01      'SAMPLE JOB TO BACKUP JOURNAL'                RECORDS: 34
2  DEFINED: 88/01/01 12:05:10.2                            RECORDS W/KWDS: 9
3  ALTERED: 88/05/10 14:45:12.8                            KEYWORDID: %0
4  LAST SUBMIT: 88/05/15 17:13:15.1                        BYTES: 955
5  SEQ # .....1.....2.....3.....4.....5.....6.....7..
6
7      1 //backup JOB
8      2 /**
9      3 /**      BACKUP CICS JOURNAL DATASETS
10     4 /**
11     5 //step1 EXEC PGM=CSIJMSTR
12     6 //STEPLIB DD DSN=your.load.lib,DISP=SHR
13     7 //RLNIMS  DD DSN=%CFDSN,DISP=SHR
14     8 //SYSPRINT DD SYSOUT=*
15     9 //SYSIN   DD *
16    10 OPTION %UPDATE
17    11 NOTIFY JOURNAL(%APPLID/%JID/%ABX) -
18    12      EVENT(BACKUP START)
19    13 /*
20    14 //step2 EXEC PGM=CSIRECOV
21    15 //STEPLIB DD DSN=your.load.lib,DISP=SHR
22    16 //journal DD DSN=%JDSN,DISP=SHR
23    16 //backup  DD DSN=backup.%APPLID.J%JID.%ABX,
24    18      DISP=(NEW,CATLG),
25    19      UNIT=TAPE,DCB=BLKSIZE=8192
26    20 //SYSPRINT DD SYSOUT=*
27    21 //SYSIN   DD *
28    22 INPUT JOURNAL(journal) SORT
29    23 OUTPUT BACKUP(backup)
30    24 /*
31    25 //step3 EXEC PGM=CSIJMSTR
32    26 //STEPLIB DD DSN=your.load.lib,DISP=SHR
33    27 //RLNIMS  DD DSN=%CFDSN,DISP=SHR
34    28 //SYSPRINT DD SYSOUT=*
35    29 //SYSIN   DD *
36    30 OPTION %UPDATE
37    31 NOTIFY JOURNAL(%APPLID/%JID/%ABX) AVAILABLE -
38    32      EVENT(BACKUP END)
39    33 /*
40    34 //

```

- Line 1:**
- The name of the JCL member (JOB01).
 - The description specified for the JCL member.
 - The number of JCL records.

- Line 2:**
- Date and Time that the JCL was first defined on the Journal Control File.

- The number of JCL records that contain at least one "System Variable".
- Line 3:**
- Date and Time that the JCL was last modified on the Journal Control File.
 - The character defined for this JCL member as the marker for "System Variables".
- Line 4:**
- Date and Time that the JCL was last submitted by the Journal Open Exit (CSIXJCO), or by the SUBMIT Command with the UPDATE Operand specified.
 - The total number of bytes on the Journal Control File used to contain this JCL member.
- Lines 5 through nnn:**
- The remainder of the report contains the actual JCL records. "System Variables" are shown "as is".

PRINT SCHEDULE Output

```

1  SCHEDULE DEFINITION -----
2  NAME: SCHED001
3  DESC: SAMPLE SCHEDULE 001
4  DEFINED: 89/06/26 12:01:01.0
5  ALTERED: 89/07/18 14:31:20.5
6  MONDAY   MINIMUM: 00:15
7           TIMES: 09:00/00:30 10:05/00:00 11:00/00:15 13:00/00:30
8  TUESDAY  EVERY: 00:45
9  THURSDAY MINIMUM: 00:45
10          TIMES: 06:00/01:00 18:00/00:00
11  SATURDAY (NONE)
12  SUNDAY   (NONE)
13  HOLIDAY  MINIMUM: 00:00
14          TIMES: 01:00/00:00 05:00/00:00 07:00/00:00 09:00/00:00 11:00/00:00
15          13:00/00:00 15:00/00:00 17:00/00:00
16  DEFAULT  MINIMUM: 00:30
17          TIMES: 06:00/01:00
18

```

Line 2: • Name of the SCHEDULE definition.

Line 3: • Description of the SCHEDULE definition.

Line 4: • Date and Time that the SCHEDULE definition was first defined on the Journal Control File.

Line 5: • Date and Time that the SCHEDULE definition was last loaded via a LOAD SCHEDULE Command.

Lines 6 through nnn:

- The remainder of the report contains the schedule definitions for each 'dayofweek' defined in the SCHEDULE definition. The 'dayofweek' entries are listed in the sequence they were specified in the LOAD SCHEDULE Command. Refer to the LOAD SCHEDULE Command for a description of the values for MINIMUM, EVERY and TIMES.

PRINT HOLIDAYS Output

```
1  SYSIN: PRINT HOLIDAYS(CSIHDY00) YEAR(1989)
2
3      1989/001  01/01/89  SUNDAY    NEW YEARS DAY
4      1989/002  01/02/89  MONDAY    NEW YEARS DAY
5      1989/149  05/29/89  MONDAY    MEMORIAL DAY
6      1989/185  07/04/89  TUESDAY   JULY 4TH
7      1989/247  09/04/89  MONDAY    LABOR DAY
8      1989/327  11/23/89  THURSDAY  THANKSGIVING
9      1989/359  12/25/89  MONDAY    CHRISTMAS
10
11  SYSIN: PRINT HOLIDAYS(CSIHDY00) YEAR(1990)
12
13      1990/001  01/01/90  MONDAY    NEW YEARS DAY
14      1990/148  05/28/90  MONDAY    MEMORIAL DAY
15      1990/185  07/04/90  WEDNESDAY JULY 4TH
16      1990/246  09/03/90  MONDAY    LABOR DAY
17      1990/326  11/22/90  THURSDAY  THANKSGIVING
18      1990/359  12/25/90  TUESDAY   CHRISTMAS
```

This reports contains one line for each holiday defined in the specified holiday table.

For each holiday, the Julian and Gregorian dates of the holiday, the day of the week, and the holiday description from the holiday table are displayed.

In this example, the default holiday table shipped with FSI-JMASTER is shown for the years 1989 and 1990.

SUBMIT Command

The SUBMIT Command can be used to test JCL in a batch mode. The SUBMIT Command allows you to specify the name of a JCL member in the Journal Control File, along with values for the System Variables that would normally be available in the CICS Journal open/close exits. The JCL is expanded using the supplied System Variables and is written to the DD statement IRDR.

How to enter

```
SUBMIT JCL(jclname) -
      JOURNAL(applid/jid[/abx]) -
      [CICSJOB(CICSJOBX|xxxxxxxx) -]
      [CICSREL(1.7|xxx) -]
      [EXPAND|NOEXPAND -]
      [JDSN(journal.dataset.name) -]
      [NOUPDATE|UPDATE -]
      [SYSID(SYSX|xxxx) ]
```

Explanation

JCL(jclname)

Required. Specifies the name of the JCL member from the Journal Control File that is to be submitted.

JOURNAL(applid/jid[/abx])

Required. Specifies the CICS APPLID, JID and extent (abx) of the journal definition from the Journal Control File that is to be submitted.

If the extent (abx) is omitted, the extent most recently opened by CICS is used.

The CICS System log can either be specified as a JID of 01 or by the special name SYSTEM.

CICSJOB(**CICSJOBX**|xxxxxxxx)

Specifies the CICS Job name to be used for the CICSJOB System Variable.

CICSREL(1.7 | xxx)

Specifies the CICS Release to be used for the CICSREL System Variable.

EXPAND | NOEXPAND)

Specifies whether or not System Variables should be expanded to actual data values. If NOEXPAND is specified, the System Variables will appear "as is" in the submitted JCL.

JDSN(journal .dataset .name)

Specifies the dataset name to be used for the JDSN System Variable for the journal extent being submitted. If this operand is omitted, the dataset name from the Journal Control File will be used. The Journal Control File will have the dataset name that was used the last time CICS opened the journal extent.

NOUPDATE | UPDATE

This operand specifies whether or not the Journal Control File should be updated for this submit.

This is the value used for the %UPDATE "System Variable". Refer to the LOAD JCL Command for information on "System Variables".

NOUPDATE means that this submit is for testing purposes only and should not affect the availability of the journal for CICS.

UPDATE means that this submit will back up the CICS Journal and should affect the availability of the journal for CICS.

SYSID(SYSX | xxxx)

Specifies the CICS System ID to be used for the SYSID System Variable.

MESSAGES

- FSIJMSTR-107** **THE COMMAND IS NOT FOLLOWED BY A VALID KEYWORD,
CONDITION CODE = 12**
- This message is displayed on SYSPRINT if the JOURNAL or JCL Operand does not immediately follow the Command name for an ALTER, DEFINE, DELETE, LOAD, NOTIFY, PRINT or SUBMIT Command. The condition code for the Command is set to 12.
- FSIJMSTR-108** **JOURNAL HAS ALREADY BEEN DEFINED IN THE CONTROL FILE,
CONDITION CODE = 8**
- This message is displayed on SYSPRINT if a DEFINE JOURNAL Command is specified for an existing (APPLID/JID/ABX) combination. If you have specified the desired journal, use the ALTER JOURNAL Command to change the desired operands. The condition code for the Command is set to 8.
- FSIJMSTR-109** **JCL IS LOCKED FOR [UPDATE
RETRIEVE] BY xxxxxxxx,
CONDITION CODE = 8**
- This message is displayed on SYSPRINT if an ALTER, DELETE, LOAD, PRINT or SUBMIT Command is attempted on a JCL member that is currently being updated or retrieved for submission by another job (xxxxxxx). . The condition code for the Command is set to 8.
- FSIJMSTR-110** **JCL INPUT FILE IS EMPTY, CONDITION CODE = 8**
- This message is displayed on SYSPRINT if a SUBMIT Command is attempted on a JCL member that is empty. This message can also occur if a LOAD JCL Command is specified without the DELIM Operand. The condition code for the Command is set to 8.
- FSIJMSTR-111** **END OF SYSIN REACHED - DELIMITER 'xx' NOT FOUND,
PROCESSING TERMINATED**
- This message is displayed on SYSPRINT and the System Console during a LOAD JCL Command if the delimiter line has not been specified following the JCL. Processing is terminated with a Jobstep Return/Condition code of 12.
- FSIJMSTR-112** **ERROR ON CONTROL FILE 'ddname' - FUNC=xxxxxxxxxxx,
RC=X'hh'(nnn), EC=X'hh'(nnn),
PROCESSING TERMINATED**
- This message is displayed on SYSPRINT and the System Console if an unexpected error condition occurs while CSIJMSTR is accessing the Journal Control File. The VSAM return code and error code are displayed in the message, along with a text description of the VSAM sub-function being performed by CSIJMSTR. If the error is not due to JCL problems, request technical assistance. Processing is terminated with a Jobstep Return/Condition code of 12.

FSIJMSTR-113 IMPROPER DEFINITION OF CONTROL FILE 'ddname'

```

JCL NOT SPECIFIED
KEY LENGTH IS NOT nnn
KEY OFFSET IS NOT nnn
RECSZ IS GREATER THAN nnn
PROCESSING TERMINATED

```

This message is displayed on SYSPRINT and the System Console if the Journal Control File has not been defined properly to VSAM or the DD statement is missing. Refer to source member CSIJMSDF for the VSAM definitions required for the Journal Control File. Processing is terminated with a Jobstep Return/Condition code of 12.

**FSIJMSTR-114 UNEXPECTED RETURN CODE FROM CSIVSAM -
FUNCTION=function code, RC=return code,
PROCESSING TERMINATED**

This message is displayed on SYSPRINT and the System Console if an unexpected error condition occurs while CSIJMSTR is accessing the Journal Control File. Request technical assistance for this problem. Processing is terminated with a Jobstep Return/Condition code of 12.

FSIJMSTR-115 JCL(jclname) WILL BE USED FOR JOURNAL(applid/jid)

This message is displayed on SYSPRINT when a SUBMIT Command is processed that does not specify a JCL Operand. The (jclname) is the value from the Journal Control File for the specified JOURNAL. This message is informational only. The condition code for the Command is not changed.

**FSIJMSTR-116 INVALID KEYWORD '%keyword' FOUND IN JCL RECORD nnn,
CONDITION CODE = 8**

This message is displayed on SYSPRINT if a JCL line contains a KEYWORDID followed by an invalid System Variable name. The invalid keyword will be left in the JCL as it was found. Refer to the LOAD JCL Command for information about System Variables. The condition code for the Command is set to 8.

**FSIJMSTR-117 KEYWORD SUBSTITUTION CAUSED OVERFLOW IN JCL RECORD
nnn, CONDITION CODE = 8**

This message is displayed on SYSPRINT if a JCL line contains a combination of System Variable names that will cause an overflow of the JCL line when expanded. Refer to the LOAD JCL Command for information about System Variables. The condition code for the Command is set to 8.

FSIJMSTR-131 JCL(jclname) FOR JOURNAL(applid/jid/abx) IS LOCKED FOR **[UPDATE
RETRIEVE]**
BY xxxxxxxx, yy/ddd hh:mm:ss
FSIJMSTR-131R ENTER RETRY OR IGNORE

This message is displayed on the System Console and the Transient Data Queue "CSML" if a JCL submission is attempted on a JCL member that is currently being updated or retrieved for submission by another job (xxxxxxx). The Journal Open Exit will have already waited a predefined amount of time before issuing this message.

Respond "RETRY" to check the lock condition again, or respond "IGNORE" to assume the JCL is available. If you respond "IGNORE" the lock condition will be removed from the JCL member.

FSIJMSTR-132 ERROR ON CONTROL FILE 'ddname'
DSN=journal.control.file
FOR JOURNAL(applid/jid/abx) JCL(jclname) yy/ddd hh:mm:ss
CICS TR=X'xx'(request code)
CICS RC=X'xx'(return code)
VSAM RC=X'xx'(return code), EC=X'xx'(error code)
FSIJMSTR-132R ENTER RETRY OR IGNORE

This message is displayed on the System Console and the Transient Data Queue "CSML" if an unexpected VSAM error condition occurs while the Journal Open Exit is accessing the Journal Control File. The VSAM return code and error code are displayed in the message, along with a text description of the VSAM sub-function being performed.

Respond "RETRY" to attempt the VSAM function again, or respond "IGNORE" to return to CICS and allow the CICS Journal to be opened.

FSIJMSTR-133 UNEXPECTED RETURN CODE ON CONTROL FILE 'ddname' -
DSN=journal.control.file
FOR JOURNAL(applid/jid/abx) JCL(jclname) yy/ddd hh:mm:ss
CICS TR=X'xx'(request code)
CICS RC=X'xx'(return code)
FSIJMSTR-133R ENTER RETRY OR IGNORE

This message is displayed on the System Console and the Transient Data Queue "CSML" if an unexpected CICS error condition occurs while the Journal Open Exit is accessing the Journal Control File.

Common request codes are: 84 Get for Update
 40 Put for Update

Common return codes are:

01	DSIDERR
02	ILLOGIC
08	INVREQ
0C	NOTOPEN
0F	EOF
80	IOERROR
81	NOTFND
82	DUPREC

Verify that your CICS FCT entry for the Journal Control File is defined as specified in section "Installation". If it is, request technical assistance for this problem.

Respond "RETRY" to attempt the VSAM function again, or respond "IGNORE" to return to CICS and allow the CICS Journal to be opened.

FSIJMSTR-134 **KEYWORD SUBSTITUTION CAUSED OVERFLOW IN JCL(jclname)
RECORD nnn,
FOR JOURNAL(applid/jid/abx) yy/ddd hh:mm:ss**

This message is displayed on the System Console and the Transient Data Queue "CSML" if a JCL line contains a combination of System Variable names that caused an overflow of the JCL line. Refer to the LOAD JCL Command for information about System Variables. The JCL will be submitted with the overflow condition.

FSIJMSTR-135 **JCL(jclname) EXTRACT ERROR
FOR JOURNAL(applid/jid/abx) yy/ddd hh:mm:ss
POSSIBLE CONTROL FILE DAMAGE,**

	LOADED	EXTRACTED
RECORDS	nnn	nnn
CHARACTERS	nnn	nnn
RECS W/KWDS	nnn	nnn

FSIJMSTR-135R **ENTER RETRY OR IGNORE**

This message is displayed on the System Console and the Transient Data Queue "CSML" if the JCL retrieved from the Journal Control File does not match the way it was loaded. Request technical assistance for this problem.

Respond "RETRY" to attempt the JCL extract again, or respond "IGNORE" to submit the JCL as extracted.

FSIJMSTR-136 **DATASET EXTENT IS NOT AVAILABLE
FOR JOURNAL(applid/jid/abx) yy/ddd hh:mm:ss**
FSIJMSTR-136R **ENTER RETRY, OVERLAY OR RESUBMIT**

This informational message is displayed on the System Console and the Transient Data Queue "CSML" if the Journal Open Exit (CSIXJCO) determines that CICS is attempting to open a journal that has not been backed up successfully. The response can be one of the following:

	RETRY	Check the status again. This response should be given if the backup JCL completes after the message has been displayed.
	OVERLAY	Don't wait for the backup to complete. This response allows CICS to open the journal extent as if the backup JCL had completed. Care should be taken in using this response.
	RESUBMIT	Re-submit the backup JCL. This response can be used if the backup JCL has terminated for some reason. After the JCL is submitted, this message will be displayed again, and the Journal Open Exit will wait for your next response.
FSIJMSTR-137	REPLY FROM OPERATOR 'xxxxxxxx' FOR JOURNAL(applid/jid) yy/ddd hh:mm:ss	
		This informational message is sent to the Transient Data Queue "CSML" whenever a response is given to a message.
FSIJMSTR-138	JOURNAL OPEN EXIT INTEGRITY CHECK 'xxxxxxxx' FOR JOURNAL(applid/jid/abx) yy/ddd hh:mm:ss TASK(nnn) TRANS(tran) FAC(term)	
FSIJMSTR-138R	ENTER IGNORE OR ABEND	
		This message is displayed on the System Console and the Transient Data Queue "CSML" if an unexpected error condition prevents the Journal Open Exit from performing its function.
		Respond "IGNORE" to return to CICS and allow the CICS Journal to be opened or "ABEND" to cause the CICS task to terminate.
FSIJMSTR-139	JCL(jclname) NOT FOUND FOR JOURNAL(applid/jid/abx) yy/ddd hh:mm:ss	
FSIJMSTR-139R	ENTER RETRY, IGNORE OR SUBMIT XXXXXXXX	
		This message is displayed on the System Console and the Transient Data Queue "CSML" if the "jclname" specified for a CICS Journal cannot be found on the Journal Control File when a submit is required.
		Respond "RETRY" if you have loaded the JCL to the Journal Control File since this message was displayed.
		Respond "IGNORE" to return to CICS and allow the CICS Journal to be opened.
		Respond "SUBMIT jclname" if you want a different jclname to be submitted.

FSIJMSTR-140 **JCL(jclname) TIMEOUT EXPIRED AT yy/ddd hh:mm:ss**
RECORD STATUS FOR JOURNAL(applid/jid/abx) yy/ddd hh:mm:ss
JOURNAL DSN=journal.dataset.name
HAS NOT BEEN UPDATED

FSIJMSTR-140R **ENTER RETRY, WAIT, IGNORE OR RESUBMIT**

This message is displayed on the System Console and the Transient Data Queue "CSML" if a journal backup has not completed within the TIMEOUT period defined in the Journal Control File for the specified journal extent.

Respond "RETRY" if you have determined that the backup has completed since this message was displayed.

Respond "WAIT" if you want to wait for additional TIMEOUT period. If the backup is still not completed, this message will be displayed again.

Respond "IGNORE" to return to CICS and allow the CICS Journal to be opened as if the backup had completed.

Respond "RESUBMIT " if you want the backup JCL to be resubmitted.

FSIJMSTR-141 **OPEN FOR JOURNAL(applid/jid/abx) yy/ddd hh:mm:ss**
[MANAGED BY JMASTER
NOT MANAGED BY JMASTER]

This informational message is sent to the Transient Data Queue "CSML" whenever CICS opens a journal. The second line indicates whether or not the CICS journal is under the control of FSI-JMASTER

FSIJMSTR-142 **CLOSE FOR JOURNAL(applid/jid/abx) yy/ddd hh:mm:ss**
[MANAGED BY JMASTER
NOT MANAGED BY JMASTER]

This informational message is sent to the Transient Data Queue "CSML" whenever CICS closes a journal under the control of FSI-JMASTER

FSIJMSTR-143 **USER RESUBMIT FOR JOURNAL(applid/jid/abx) yy/ddd hh:mm:ss**

This informational message is sent to the Transient Data Queue "CSML" whenever a response to a message results in JCL being resubmitted.

FSIJMSTR-144 **JCL(jclname) 'jcl description'**
SUBMITTED FOR JOURNAL(applid/jid/abx) yy/ddd hh:mm:ss
JOURNAL DSN=journal.dataset.name

This informational message is sent to the Transient Data Queue "CSML" whenever the journal open exit submits JCL for a journal backup.

FSIJMSTR-145 **INVALID TRANSACTION ID 'tttt'**
FOR JOURNAL(applid/jid/abx) yy/ddd hh:mm:ss

This message is displayed on the System Console and the Transient Data Queue "CSML" if a TIMEOUT option specifies that a transaction is to be started, but the Tran ID has not been defined to CICS. The TIMEOUT option will be ignored.

FSIJMSTR-146 **TRANS DATA 'qqqq' IS CLOSED - CANNOT SUBMIT FOR**
JOURNAL(applid/jid/abx) yy/ddd hh:mm:ss
FSIJMSTR-146R **ENTER RETRY OR IGNORE**

This message is displayed on the System Console and the Transient Data Queue "CSML" if the Transient Data Queue 'qqqq' cannot be accessed for a JCL submission.

Respond "RETRY" if you have determined that the queue has become available.

Respond "IGNORE" to bypass the submission.

FSIJMSTR-151 **SCHEDULE(xxxxxxxx) NOT FOUND**
FOR JOURNAL(applid/jid) yy/ddd hh:mm:ss
FSIJMSTR-151R **ENTER RETRY, IGNORE OR SCHEDULE XXXXXXXX**

This message is displayed on the System Console and the Transient Data Queue "CSML" if the AUTOSWITCH schedule for a journal cannot be found in the Journal Control File.

Respond "RETRY" if you have loaded this SCHEDULE to the Journal Control File since this message was displayed.

Respond "IGNORE" to bypass holiday processing.

Respond "SCHEDULE schedulename" if you want to use a different schedule name for holiday processing.

FSIJMSTR-152 **AUTOSWITCH OCCURRING FOR JOURNAL(applid/jid)**
yy/ddd hh:mm:ss

This message is displayed on the System Console and the Transient Data Queue "CSML". It is an informational message to inform you that a scheduled automatic journal switch is about to occur.

FSIJMSTR-153 **NEXT AUTOSWITCH SCHEDULED FOR JOURNAL(applid/jid)**
USING SCHEDULE(xxxxxxx) DAY(dayofweek/holiday)
FOR [TODAY
dayofweek] AT hh:mm:ss
(AN INTERVAL OF hh:mm:ss)
AS OF(mm/dd/yy hh:mm:ss)

This message is displayed on the System Console and the Transient Data Queue "CSML". It is an informational message to inform you that the next automatic journal switch has been scheduled for the specified JOURNAL. Included in the message are:

- The SCHEDULE name used.
- The 'dayofweek' used from the SCHEDULE. If the dayofweek is a holiday, the name of the holiday is shown.
- The 'dayofweek' that the switch will occur on.
- The interval between the current date and time and the scheduled switch.
- The current date and time.

FSIJMSTR-154 **INVALID TRANSACTION ID 'xxxx'**
AUTOSWITCH FOR JOURNAL(applid/jid) IGNORED
yy/ddd hh:mm:ss

This message is displayed on the System Console and the Transient Data Queue "CSML". It occurs if the CICS Tran ID for FSI-JMASTER's CEMT function has not been defined in the CICS PCT. Refer to section "Installation" for the required CICS PCT and PPT entries.

FSIJMSTR-155 **PREVIOUS BACKUP NOT COMPLETED FOR JOURNAL(applid/jid)**
SCHEDULED AUTOSWITCH NOT PERFORMED
yy/ddd hh:mm:ss

This message is displayed on the System Console and the Transient Data Queue "CSML". It occurs if a scheduled Automatic Journal Switch is attempted and a previously submitted Backup JCL has not yet completed. The current AUTOSWITCH is not performed, and the next one is scheduled.

FSIJMSTR-156 **NEXT AUTOSWITCH CANNOT BE SCHEDULED FOR JOURNAL(applid/jid) USING SCHEDULE(xxxxxxx) CALCULATED INTERVAL OF hh:mm:ss IS LESS THAN INSTALLATION DEFINED MINIMUM OF hh:mm:ss yy/ddd hh:mm:ss**

This message is displayed on the System Console and the Transient Data Queue "CSML". It occurs if the SCHEDULE definition results in the next Automatic Journal Switch occurring within the global minimum defined within FSI-JMASTER. Refer to section "Customization" if you wish to change the global minimum.

FSIJMSTR-157 **NEXT AUTOSWITCH CANNOT BE SCHEDULED FOR JOURNAL(applid/jid) USING SCHEDULE(xxxxxxx) REQUIRED DAY ENTRIES COULD NOT BE LOCATED yy/ddd hh:mm:ss**

This message is displayed on the System Console and the Transient Data Queue "CSML". It occurs if the SCHEDULE definition does not contain an entry for every 'dayofweek', and does not contain a DEFAULT entry.

FSIJMSTR-158 **HOLIDAY TABLE 'xxxxxxx' WILL EXPIRE ON mm/dd/yy yy/ddd hh:mm:ss**

This message is displayed on the System Console and the Transient Data Queue "CSML". It is an informational message that informs you that your holiday table is about to expire. Refer to "Appendix B" for information on how to update your holiday table.

FSIJMSTR-159 **HOLIDAY TABLE 'xxxxxxx' EXPIRED ON mm/dd/yy HOLIDAY PROCESSING WILL BE BYPASSED yy/ddd hh:mm:ss**

This message is displayed on the System Console and the Transient Data Queue "CSML". It occurs if your holiday table has expired. FSI-JMASTER will use regular 'dayofweek' processing for scheduling the next Automatic Journal Switch. Refer to "Appendix B" for information on how to update your holiday table.

FSIJMSTR-160 **HOLIDAY TABLE 'xxxxxxx' IS INVALID, RC='xx' HOLIDAY PROCESSING WILL BE BYPASSED yy/ddd hh:mm:ss**

This message is displayed on the System Console and the Transient Data Queue "CSML". It occurs if FSI-JMASTER determines that your holiday table is invalid. FSI-JMASTER will use regular 'dayofweek' processing for scheduling the next Automatic Journal Switch. RC contains the reason that the holiday table is invalid:

01 no table specified
02 no 'CSIHDY00' eyecatcher
03 no TYPE=FINAL
04 unknown entry type
05 invalid DATE=yymmdd
06 invalid SPECIAL=
07 no length in entry
08 no 'ID' table address
09 invalid 'ID' code in entry

Refer to "Appendix B" for information on how to generate your holiday table. If the problem continues, request technical assistance for this error.

**FSIJMSTR-161 HOLIDAY TABLE 'xxxxxxx' NOT FOUND OR DISABLED
HOLIDAY PROCESSING WILL BE BYPASSED
yy/ddd hh:mm:ss**

This message is displayed on the System Console and the Transient Data Queue "CSML". It occurs if your holiday table has not been specified in the CICS PPT, or the PPT entry is disabled. Refer to section "Installation" for required CICS PPT entries.

**FSIJMSTR-164 SCHEDULE 'xxxxxxx' HAS BEEN DEACTIVATED / SUSPENDED.
AUTOSWITCH FOR JOURNAL(applid/jid) IGNORED mm/dd/yy yy/ddd
hh:mm:ss**

This message is displayed on the System Console and the Transient Data Queue "CSML". It occurs when a previously scheduled Automatic Journal Switch finds that the status of the AUTOSWITCH has been set to SUSPEND via an ALTER JOURNAL Command. The next Automatic Switch will be scheduled in anticipation that the status will be changed to ON.

**FSIJMSTR-165 SCHEDULE 'xxxxxxx' HAS BEEN DEACTIVATED. NO NEW
AUTOSWITCH FOR JOURNAL(applid/jid) ESTABLISHED mm/dd/yy
yy/ddd hh:mm:ss**

This message is displayed on the System Console and the Transient Data Queue "CSML". It occurs when a previously scheduled Automatic Journal Switch finds that the status of the AUTOSWITCH has been set to OFF via an ALTER JOURNAL Command. Automatic Journal Switching will not resume until the status is changed back to ON, and a CICS Journal Switch for this journal occurs.

**FSIJMSTR-168 INVALID FILE CONTROL REQUEST MADE, FILE WAS NOT
ACCESSED**

This message is displayed on the Transient Data Queue "CSML". It is issued when the Interval Control subsystem has issued a read to the control file, but the file access module has determined that the request is invalid. This usually means that the CICS COMMAREA from the application has been corrupted.

The suspended "JMSI" transaction should be purged and restarted with the "JMSP" transaction.

FSIJMSTR-169 **ERROR FOUND DURING VSAM REQUEST. REQUEST WAS xxxxxx,
VSAM SAYS: sssssssssssssss**

This message is displayed on the Transient Data Queue "CSML". It is issued during initialization's attempt to access the control file. The message VSAM produces is displayed for redress by your Operations staff.

FSIJMSTR-171 **ffff STARTED TRAN 'xxxx' SUBMITTED FOR JOURNAL (applid/jid/abx)
yy/ddd hh:mm:ss**

This message is displayed on the Transient Data Queue "CSML". It occurs whenever a TIME-OUT or AUTO-SCH Interval Control function is started by CSIJMS53.

FSIJMSTR-173 **ECB TABLE 'CSIJMS60' COULD NOT BE FOUND**

This message is displayed on the Transient Data Queue "CSML". It occurs when the configuration table and Event Control Block module 'CSIJMS60' cannot be loaded. This can occur if the PPT entry for 'CSIJMS60' is missing or has become disabled.

FSIJMSTR-174 **ECB ADDRESS WAS INVALID**

This message is displayed on the Transient Data Queue "CSML". It occurs when the Event Control Block module address found after the load of 'CSIJMS60' is not accurate. This can occur if the CICS Dynamic Storage Area (DSA) has been corrupted. The suspended transaction 'JMSI' should be purged, and restarted with the transaction 'JMSP'.

FSIJMSTR-175 **START TRAN ECB HAS ALREADY BEEN POSTED**
FSIJMSTR-175R **MONITOR TASK 'xxxx' MAY NOT BE ACTIVE.
ENTER RETRY OR IGNORE**

This message is displayed on the Transient Data Queue "CSML" and the System Console. This message indicates that the Interval Control Monitor program, 'CSIJMS53' under tranid 'JMSI' may not be active. To activate the monitor, execute transaction 'JMSP' in the affected CICS region and the respond 'RETRY' to this message. If you enter 'IGNORE', the Journal management system will continue without posting the ECB. This is not crucial since 'CSIJMS53' will search the control file for any Interval Control requests when it is first started. With either response, the status of 'JMSI' must be verified to ensure that the queued Interval Control requests are being reviewed and started.

FSIJMSTR-176 DELAY REQUEST FAILED AFTER ECB BUSY SIGNAL

This message is displayed on the Transient Data Queue "CSML". It occurs when the journal management system has found the ECB posted and has attempted to issue a DELAY request to allow the ECB to be cleared before attempting to post it again. Check to insure that the Interval Control monitor task 'JMSI' is active. If not, activate it using transaction 'JMSP'. This message will normally occur after a response of 'RETRY' to message FSIJMSTR-175R.

FSIJMSTR-178 INTERVAL CONTROL CANCEL FOR ANY JMASTER REQID'S DID NOT FIND REQID xxxxxxxx ON THE ICE CHAIN. CONTROL RECORD INDICATES IT SHOULD HAVE BEEN ACTIVE.

This message will be displayed on the Transient Data Queue "CMSL". It is informational only. It will indicate that during shutdown the attempt to purge an interval control transaction failed, although scheduling was active and an entry should have been found. Failure to find an entry will not jeopardize the integrity of FSI-JMASTER or CICS.

FSIJMSTR-179 INTERVAL CONTROL CANCEL FOR ANY JMASTER REQID'S WAS SUCCESSFUL, REQID xxxxxxxx WAS CANCELLED.

This message will be displayed on the Transient Data Queue "CMSL". It is informational only. It will indicate that during shutdown the attempt to purge an interval control transaction was successful.

**FSIJMSTR-186 SCHEDULE DEFINITION FOR 'dayofweek' MUST CONTAIN TIMES AND INTERVALS SPECIFIED IN 'HH:MM' FORMAT. 'xxxxxxx' HAS BEEN INCORRECTLY SPECIFIED
CONDITION CODE = 8**

This message is displayed on SYSPRINT if a time or interval operand was coded incorrectly. It must be coded using one or two digits for "hh" and two digits for "MM". The condition code for the Command is set to 8.

**FSIJMSTR-187 SCHEDULE DEFINITION EXCEEDS MAXIMUM CONTROL FILE RECORD LENGTH BY n BYTES
CONDITION CODE = 8**

This message is displayed on SYSPRINT if the size required by the SCHEDULE definition exceeds the CISIZE of your Journal Control File. You must either increase the CISIZE or respecify the SCHEDULE definition using fewer days or times/intervals. The condition code for the Command is set to 8.

- FSIJMSTR-188** **SCHEDULE DEFINITION CONTAINS DUPLICATE DEFINITIONS FOR 'dayofweek'**
CONDITION CODE = 8
- This message is displayed on SYSPRINT if you specify the same 'dayofweek' more than once. The condition code for the Command is set to 8.
- FSIJMSTR-189** **SCHEDULE DEFINITION FOR 'dayofweek' CONTAINS TIMES THAT ARE DUPLICATED OR OUT OF SEQUENCE**
CONDITION CODE = 8
- This message is displayed on SYSPRINT if you specify a TIMES Operand with a list of times/intervals that are not in ascending sequence by time. The condition code for the Command is set to 8.
- FSIJMSTR-190** **SCHEDULE DEFINITION FOR 'dayofweek' CONTAINS BOTH THE 'EVERY' AND 'TIMES' OPERANDS. THESE ARE MUTUALLY EXCLUSIVE OPERANDS.**
CONDITION CODE = 8
- This message is displayed on SYSPRINT. Refer to the LOAD SCHEDULE Command for proper syntax. The condition code for the Command is set to 8.
- FSIJMSTR-191** **SCHEDULE DEFINITION FOR 'dayofweek' CONTAINS A ZERO VALUE FOR 'EVERY'**
CONDITION CODE = 8
- This message is displayed on SYSPRINT if you specify the EVERY Operand with 0:00 for the interval. The condition code for the Command is set to 8.
- FSIJMSTR-192** **SCHEDULE DEFINITION FOR 'dayofweek' MUST SPECIFY THE 'EVERY', 'TIMES' OR 'NONE' OPERAND**
CONDITION CODE = 8
- This message is displayed on SYSPRINT. Refer to the LOAD SCHEDULE Command for proper syntax. The condition code for the Command is set to 8.
- FSIJMSTR-193** **HOLIDAY TABLE 'xxxxxxx' NOT FOUND**
CONDITION CODE = 8
- This message is displayed on SYSPRINT if the PRINT HOLIDAYS Command contains the name of a holiday table that is not in a Load Library accessible to CSIJMSTR. The condition code for the Command is set to 8.
- FSIJMSTR-194** **HOLIDAY TABLE 'xxxxxxx' EXPIRED ON mm/dd/yy**
- This message is displayed on SYSPRINT if the PRINT HOLIDAYS Command contains the name of a holiday table that is expired. Refer to "Appendix B" for information on how to update your holiday table. The condition code for the Command is set to 8.

FSIJMSTR-195 HOLIDAY TABLE 'xxxxxxx' IS INVALID, RC='xx'

This message is displayed on SYSPRINT if the PRINT HOLIDAYS Command contains the name of a holiday table that is invalid. Refer to message FSIJMSTR-160 for a list of RC codes and reasons. The condition code for the Command is set to 8.

FSIJMSTR-1000 'x' IS AN INVALID COMMAND

The first word in the line, "x", is not a valid Command. If it is a parameter intended to be part of a previous Command, check for valid continuation on the end of the previous line. If it is supposed to be part of a comment, check for the proper use of "/" (start of comment), ";" (end of Command), and continuation characters.

**FSIJMSTR-1001 'x' IS AN INVALID KEYWORD FOR 'y'
SUB-PARAMETERS FOLLOWING IT ARE IGNORED**

The character string "x" was specified as a sub-parameter of "y", and is not a valid keyword for "y". Any sub-parameters coded for "x" are ignored. If "x" was not intended to be a sub-parameter of "y", check your use of parentheses. If "x" is a Command, a previous Command may have been continued improperly.

**FSIJMSTR-1002 'x' EXCEEDS THE NUMBER OF POSITIONAL PARAMETERS ALLOWED
FOR 'y'
SUB-PARAMETERS FOLLOWING IT ARE IGNORED**

Positional parameters are allowed for "y", but the maximum number allowed had already been specified before "x" was found. Any sub-parameters coded for "x" are ignored. If "x" was not intended to be a sub-parameter of "y", check your use of parentheses. If "x" is a Command, a previous Command may have been continued improperly.

**FSIJMSTR-1003 'x' IS INVALID - NO PARAMETERS ALLOWED FOR 'y'
SUB-PARAMETERS FOLLOWING IT ARE IGNORED**

No sub-parameters are allowed for "y", but "x" was coded as a sub-parameter. Any sub-parameters coded for "x" are ignored. If "x" was not intended to be a sub-parameter of "y", check your use of parentheses.

**FSIJMSTR-1004 'x' CAN BE SPECIFIED ONLY n TIMES FOR 'y'
SUB-PARAMETERS FOLLOWING IT ARE IGNORED**

A list of repeated sub-parameters (maximum of "n") are allowed for "y", but "x" exceeds this maximum. Any sub-parameters coded for "x" are ignored. If "x" was not intended to be a sub-parameter of "y", check your use of parentheses.

FSIJMSTR-1006 'x' IS NOT A VALID NUMERIC VALUE

The character string "x" was coded where a numeric value is expected, but it is not a valid number. If "x" was not intended to be a number, it may be positioned incorrectly in relation to other sub-parameters at the same level, or incorrect use of parentheses may have caused it to be associated with the wrong parameter.

FSIJMSTR-1007 'x' EXCEEDS THE ALLOWED NUMBER OF n CHARACTERS/DIGITS

For a non-numeric positional parameter, "x" contains too many characters. For a numeric parameter, "x" is too large a number for the positional parameter. If "x" is correct as coded, it may be positioned incorrectly in relation to other sub-parameters at the same level, or the incorrect use of parentheses may have caused it to be associated with the wrong parameter.

FSIJMSTR-1008 'x' IS NOT A VALID TIME OF DAY VALUE

A time of day value of the format "HH:MM:SS.T" was expected where "x" was coded. If "x" is not intended to be a time of day value, it may be positioned incorrectly in relation to other sub-parameters at the same level, or incorrect use of parentheses may have caused it to be associated with the wrong parameter.

FSIJMSTR-1009 DELIMITER 'x' IS INVALID FOLLOWING 'y', AND IS IGNORED

The delimiter "x" was coded where it is not allowed. A "/" delimiter is allowed only after certain parameters, and a "(" cannot immediately follow another delimiter.

FSIJMSTR-1010 EXTRA RIGHT PARENTHESES FOLLOWING 'x' IGNORED

More right parentheses ")" have been found than are needed. Either a left parenthesis "(" is missing, or too many right parentheses were coded.

FSIJMSTR-1011 MISSING n RIGHT PARENTHESES AT END OF COMMAND

The end of Command has been reached, but "n" left parentheses "(" have not been paired with right parentheses ")". Either a continuation character is missing (the next line will start a new Command), or too few right parentheses ")" were coded.

FSIJMSTR-1012 COMMENT IS NOT TERMINATED WITH '*/', OR CONTINUATION IS MISSING ON THIS LINE

A comment was started with "/*" but was not terminated properly. Comments follow the same continuation rules as parameters, and must be terminated by "*/".

- FSIJMSTR-1013** **STRING 'x' IS NOT TERMINATED WITH A QUOTE, OR CONTINUATION IS MISSING ON THIS LINE**
- The character string "x" was started as a quoted string, but an ending quote (') was not found.
- FSIJMSTR-1014** **STRING 'x' IS NOT FOLLOWED BY A SEPARATOR CHARACTER, OR ONE QUOTE WAS CODED WHERE TWO ARE REQUIRED**
- The character string "x" was started as a quoted string, and another quote (') was found which was not followed by a separator character (to end the string).
- FSIJMSTR-1015** **END OF INPUT REACHED - LAST INPUT LINE CANNOT BE CONTINUED**
- The last line in the SYSIN dataset ended with a continuation character. Since there are no more lines to process, continuation is invalid. If you did not intend the SYSIN dataset to end at this point, check your input for "/"* appearing in the first position of a SYSIN line. This is treated as end-of-file, not the start of a comment.
- FSIJMSTR-1016** **COMMAND NOT PROCESSED DUE TO SYNTAX ERRORS - CONDITION CODE n**
- The condition code set by previous errors for this Command exceeds the maximum allowed. The highest condition code for all errors for this Command is "n".
- FSIJMSTR-1017** **'x' IS NOT A VALID JULIAN DATE VALUE**
- A Julian date value in the format "YY/DDD" was expected where "x" was coded. If "x" is not intended to be a Julian date value, it may be positioned incorrectly in relation to other sub-parameters at the same level, or incorrect use of parentheses may have caused it to be associated with the wrong parameter.
- FSIJMSTR-1096** **PATCH HEX STRING CONTAINS ODD NUMBER OF DIGITS**
- The internal debugging facility has been invoked to patch a module. A hexadecimal verify or replace string was coded which does not represent a whole number of bytes. For example, X'47F0' is valid; x'47F' is not valid.
- FSIJMSTR-1097** **PATCH VERIFY ERROR**
- The internal debugging facility has been invoked to patch a module, but the data being verified does not match what is in the module.

FSIJMSTR-1098	INTERNAL ERROR - CANNOT FIND TYPE=FINAL An internal logic error has occurred. Request assistance from a support representative.
FSIJMSTR-1099	INTERNAL ERROR - CANNOT FIND TYPE=SEG FOR xxxxxxxx An internal logic error has occurred. Request assistance from a support representative.
FSIJMSTR-1100	(module+offset) INTERNAL ERROR - INVALID MESSAGE NUMBER X'xxxxxxx'(n) An internal program error has occurred at the location indicated by the module and offset information. The module has attempted to issue an error number which is not in any message tables. When requesting technical assistance for this error, please state the full error message.
FSIJMSTR-1101	(module+offset) function/macro INTERNAL ERROR - RETURN CODE X'xxxxxxx'(n) An internal program function has issued an operating system macro which failed. The function was called at the location indicated by the module and offset information. When requesting technical assistance for this error, please state the full error message.
FSIJMSTR-1102	(module+offset) function/macro INTERNAL ERROR - RETURN CODE X'xxxxxxx'(n) WHILE ISSUING MESSAGE mmmm While attempting to issue message number "mmmm", an internal program function issued an operating system macro which failed. The function was called at the location indicated by the module and offset information. Also refer to message "FSIJMSTR-mmmm" which may help in determining the cause of the problem. When requesting technical assistance for this error, please state the full error message.
FSIJMSTR-1103	GETMAIN(GM) / FREEMAIN(FM) STATISTICS GMCOUNT=n GMTOT=n FMCOUNT=n FMTOT=n CURRENT=n MAXIMUM=n LARGEST SINGLE GETMAIN=n An internal debugging function has requested a display of the memory statistics.

- FSIJMSTR-1104** (module+offset) function/macro PROGRAM 'xxxxxxx' NOT FOUND
- FSI-JMASTER attempted to load program "xxxxxxx", but it was not found in the Load Libraries available in the job step. The load function was called at the location indicated by the module and offset information. This message is issued only if the program cannot be found; other load errors will produce message FSIJMSTR-1105 or FSIJMSTR-1108
- FSIJMSTR-1105** function/macro REQUEST FOR n BYTES OF MAIN STORAGE FAILED. USE A LARGER REGION PARAMETER
- The indicated internal function issued an operating system macro which required more main storage than was available. If the number of bytes needed is not known, the message will say "REQUEST FOR MAIN STORAGE FAILED". Execute CSIJMSTR with a larger region parameter. If the problem persists, determine the cause of excessive main storage use.
- FSIJMSTR-1106** (module+offset) function/macro INVALID PRINT FILE 'filename'
- FSI-JMASTER was unable to open "filename" as a printer dataset. Check your JCL and parameters. If you request technical assistance for this error, please state the full error message.
- FSIJMSTR-1108** (module+offset) function/macro INTERNAL ERROR - ABEND CODE X'xxxx', REASON CODE X'xxxx'
- An internal program function has issued an operating system macro which failed. The function was called at the location indicated by the module and offset information. The system abend code and reason code are displayed. When requesting technical assistance for this error, please state the full error message.
- FSIJMSTR-1150** (module+offset) xxxxxxxx FUNCTION HAS BEEN ENTERED
- The operating system interface module has been called from (module+offset) to perform a "xxxxxxx" function. This message is issued only if the internal trace has been turned on.
- FSIJMSTR-2001** ALLOCATE REQUEST FAILED, RC=xx, EC=xxxx, IRC=xxxx
CONDITION CODE = 12
- This error occurs if a dynamic allocation request is rejected by MVS.
- RC is the "Return Code", it indicates the type of error:
- 04 - An error resulted from the current environment, the unavailability of a system resource, or a system routine failure; there will also be an error reason code.
 - 08 - The installation validation routine denied this request.

0C - The error is due to an invalid parameter list; there will also be an error reason code.

EC is the "Error Reason Code", it explains the reason for the return code. The following table contains a partial list of error reason codes, a complete list can be found in the MVS System Macros and Facilities manual 'GC28-1150'.

CLASS 2 CODES (UNAVAILABLE SYSTEM RESOURCE)	
0204	Real storage unavailable.
020C	Request for exclusive use of a shared data set cannot be honored.
0210	Requested data set unavailable.
0214	Unit(s) not available.
0218	Specified volume or an acceptable volume is not mounted.
021C	Unit name specified is undefined.
0220	Requested volume not available.
0224	Eligible device types do not contain enough units.
0228	Specified volume or unit in use by system.
022C	Volume mounted on ineligible permanently resident or reserved unit.
0230	Permanently resident or reserved volume on required unit.
0240	Requested device is a console.
0260	Unit does not meet specified status requirements.
0264	Invalid request due to current unit status.
0268	Tape device is broken.
CLASS 3 CODES (INVALID PARAMETER LIST)	
035C	Invalid PARM specified in text unit. ¹
0364	JOBLIB/STEPLIB/JOB/CAT/STEP/CAT specified as ddname.
0368	Authorized function requested by unauthorized user.
0380	Mutually exclusive KEY specified. ¹
0384	Mutually inclusive KEY specified. ¹
0388	Required KEY not specified.
0390	GDG specified with relative generation number exceeds 35 chars.
0394	Status and relative generation number are incompatible.
039C	Device type and volume are incompatible.
CLASS 4 CODES (ENVIRONMENTAL ERROR)	
0410	Specified ddname unavailable.
0420	Specified ddname or dsname associated with an open data set.
0440	Specified dsname not found.
0448	Request for a new data set failed; data set already exists.
044C	Request was made for a data set that has a disposition of delete.
0484	Request denied by operator.
¹ The Information Reason Code contains the value of the key that caused the error.	

IRC is the "Information Reason Code", it further explains the reason for the return code. The contents of this field will vary depending on the Error Return Code. The primary contents of this field will be the value of the "KEY" that caused the error. The following table contains a list of the KEY fields used:

0001	Ddname
0002	Data Set Dsname
0003	GDG / Member name
0004	Data Set Status
0005	Data Set Normal Disposition
0006	Data Set Conditional/Abnormal Disposition
0007	Track Space Type
0008	Cylinder Space Type
0009	Block length (Space allocation)
000A	Primary Space Quantity
000B	Secondary Space Quantity
000D	Unused Space Release (RLSE)
0010	Volume Serial number (VOLSER)
0015	Unit Description (UNIT)
001C	Unallocation at Close (FREE)
001E	Label Type
001F	Label Sequence Number
0022	Expiration Date (EXPDT)
0023	Retention Period (RETPD)
0030	DCB=BLKSIZE
0042	DCB=LRECL
0049	DCB=RECFM
0055	Returned DDNAME
0056	Returned DSNNAME
0057	Returned DSORG

FSIJMSTR-2002 DE-ALLOC REQUEST FAILED, RC=xx, EC=xxxx, IRC=xxxx

This error occurs if a dynamic de-allocation request is rejected by MVS. Refer to message 2001 for a description of RC, EC and IRC.

FSIJMSTR-9998 WARNING - PRODUCT AUTHORIZATION EXPIRES IN 30 DAYS OR LESS

This message is displayed on the system console if the copy of FSI-JMASTER you are using is about to expire. Contact your FSI product sales representative for a new Expiration Password.

FSIJMSTR-9999 PRODUCT AUTHORIZATION HAS EXPIRED

FSI-JMASTER is protected with an Expiration Password. This message is displayed on the system console if that Password has expired. Contact your FSI product sales representative for a new Expiration Password.

APPENDIX A

How To Code Commands (Syntax)

This section describes the rules for coding FSI-JMASTER Commands and their Operands. The meaning and use of the Commands themselves are not described here. The examples given here are intended only to clarify the coding syntax, not to show how to use a particular Command or Operand.

Commands are coded as one or more lines in a SYSIN dataset. Each Command may be continued using any number of lines.

A Command may contain comments, which can be coded anywhere within the Command. Comments may also be coded separately, rather than as part of a Command.

Terminology

The special terms defined below are used to describe the Command syntax.

- **COMMAND**: A Command is a FSI-JMASTER-defined Command name followed by Operands and comments. Each Command is defined and processed by FSI-JMASTER as a single entity, and may or may not be related to other Commands.
- **KEYWORD Operand**: Keyword Operands are represented in Command descriptions with upper-case letters, and indicate FSI-JMASTER-defined words which either identify sub-Operands that follow the keyword in parentheses, or modify the action taken during the processing of a Command.
- **POSITIONAL Operand**: Positional Operands are represented in Command descriptions with lower-case letters, and indicate user-provided data needed by the Command.
- **SEPARATOR CHARACTER**: A separator character is used to end an Operand, and to indicate the relationship of that Operand to other Operands. The separator characters are: space, comma, left and right parentheses, slash, and semi-colon.

- **COMMENTS:** FSI-JMASTER allows you to code comments in the SYSIN dataset. Comments are for your own documentation and are printed, but not processed, with the Commands.

Coding FSI-JMASTER Operands

FSI-JMASTER Commands all have this general structure:

COMMAND-NAME Operands ... ;

The semi-colon (;) is optional, and signals the end of the Command. Anything coded after a semi-colon is ignored. The Command-name must be the first word in a Command, terminated by a space. It is normally followed by Operands which further define the action to be taken by the Command. The Operands which are allowed after the Command-name are separated using one or more spaces. If an Operand requires one or more sub-Operands, the sub-Operands are coded in parentheses in this manner:

```
COMMAND  PARM-1  PARM-2(SUB-A(...) SUB-B) PARM-3...
```

where PARM-1, PARM-2, SUB-A, SUB-B, and PARM-3 are valid keyword or positional Operands defined for the Command named "COMMAND". Only Operands defined as valid for PARM-2 may be coded as sub-Operands following PARM-2. The Operands PARM-1, PARM-2, and PARM-3 are considered to be at the same logical level, regardless of any sub-Operands specified for each of them. Operands and sub-Operands of all logical levels follow the same coding rules.

The Command-name, Operands, and separator characters may be preceded or followed by any number of spaces. This can be used to make Commands more readable, and easier to maintain.

Keyword Operands can be coded in any order, unless the description of a Command states otherwise. Some keywords may be defined as having one or more prefixes which alter the meaning of the keyword.

Positional Operands may be coded in a variety of ways, to allow you to specify any type of data. If the data needed for an Operand contains separator characters or non-printable characters, code the Operand as a **quoted string** or as a **hexidecimal string**. If an Operand is defined as a number, you may code it either as a decimal number, or use hexadecimal notation. The relative position of each positional Operand within the Command determines the sequence in which they are acted upon.

Coding Continuation

You may specify any FSI-JMASTER Command on more than one input line by coding either a "+" or "-" as the **last non-blank character** of all but the last line of the Command. If a "-" is used as the continuation character, the Command is continued starting at the **left margin** of the following line. If a "+" is used, the Command is continued starting with the **first non-blank character** of the following line. All data on the line up to, but not including, the "+" or "-" is used. The following examples will all have the same result:

```

COMMAND PARM-1 PARM-2(SUB-A(DATA) SUB-B) PARM-3

COMMAND PARM-1 PARM-2(SUB-A(DA+
      TA) SUB-B) PARM-3

COMMAND PARM-1 PARM-2(SUB-A(DA-
      TA) SUB-B) PARM-3

COMMAND PARM-1
      PARM-2(
                SUB-A(DATA)
                SUB-B
                )
      PARM-3

```

Continuation works in the same way regardless of whether it takes place in the middle of a word, within a quoted string or comment, between Operands, or after a semi-colon (;). It takes place as the lines are read, before any other characters are interpreted.

Coding Quoted Strings

Quoted strings are valid for any positional Operand, to allow you to:

- Code data that contains separator characters - 'NOT FOUND'
- Code data that would otherwise be interpreted as a keyword.
- Code data in hexadecimal notation - x'C8C5E7'
- Code lower-case data - 'This will remain lower case'

To specify the quote character within a quoted string, code two consecutive quotes:

```
'THIS STRING CONTAINS "QUOTES" IN IT'
```

Coding Date Operands

Some Operands require a Julian date to be coded. The general format is YY/DDD, where YY is the year, and DDD is the day number (January 1 = 001, February 1 = 032, etc.). You must code exactly three digits for the day number. Coding the slash character (/) is optional.

You may specify a date that is relative to the current date by coding a "+" or "-" as the first character of the date. The number of years (optional) and days are then added to or subtracted from the current system date. When you code a relative date, the number of days must contain three digits, but it may be any number up to 999.

Coding Time Operands

Some Operands require a time of day value to be coded. The format is HH:MM:SS.T, where HH is the hour, MM is the minutes, SS is the seconds, and T is the tenths of seconds. The seconds and tenths of seconds are optional, so HH:MM or HH:MM:SS are also valid formats. If you code it without punctuation (HHMMSST), you must specify all seven digits.

Coding Comments

It is often useful to put comments with the Operands. Since a semi-colon ";" ends the parameter processing of a Command, anything coded after a semi-colon is treated as a comment. If continuation is specified after a semi-colon, the comment is continued to the next line.

A more flexible method of coding comments is provided. A comment may appear at any point that a separator character is valid, by coding "/* comment */". Any characters may appear between the "/*" and "*/", and the comment may be continued to any number of lines by using the normal continuation method. If you do not end the comment, or code a continuation character on the line, an error message is issued. In the following examples, the lower case characters represent data that are treated as comments:

```
COMMAND PARM-1;parm-2(sub-a(data) sub-b) parm-3
COMMAND PARM-1      /* comment for parm-1 */           -
      PARM-2(      /* comment for parm-2 */           -
      /* more comments */                             -
      SUB-A(DATA)                                     -
      )                                               -
      /* a single comment can be-
      continued */
```

APPENDIX B

Generating a Holiday Table (CSIHDY00)

This section describes how to generate a holiday table (CSIHDY00) for FSI-JMASTER.

The holiday table is required if you want to use the HOLIDAY option of the LOAD SCHEDULE Command. The purpose of the holiday table is to define which days are considered holidays for your installation.

A default holiday table has been shipped with FSI-JMASTER in both source and object form. You can use this table as a basis for your own holiday table.

A special macro (CSIHDAY) has been supplied with FSI-JMASTER. This macro is used to generate the holiday table.

When you assemble and link your holiday table, FSI-JMASTER is expecting it to be named 'CSIHDY00'. If you do not want to use that name, refer to section "Customization" to change the name in module CSIXJCO.

You can generate your holiday with only the holidays for the current year, or you can specify holidays for the current and future years.

The following pages describe each of the CSIHDAY macro's six formats:

CSIHDAY TYPE=INITIAL,	X
EXPIRES=yymmdd,	X
WARNDTE=yymmdd	

This format is required, and must be the first macro entry in your Holiday table.

EXPIRES=yymmdd

This Operand provides an optional expiration date for your holiday table. If specified, it must be in yymmdd format. If omitted, your holiday table will never expire.

FSI-JMASTER will not use a holiday table that is expired.

WARNDTE=yymmdd

This Operand provides an optional warning date for a holiday table that is about to expire. This Operand can only be specified if EXPIRES is also specified. The WARNDTE must not be greater than the date for EXPIRES.

FSI-JMASTER will start displaying a warning message when this date is reached.

If this Operand is omitted, no warning messages will be displayed.

Note: Be sure to update EXPIRES and WARNDTE when you update your holiday table for future years.

CSIHDAY TYPE=FINAL

This format is required, and must be the last macro entry in your Holiday table.

CSIHDAY SPECIAL=(month,day,qual),	X
ID='description',	X
YEAR=nn	

This format is optional. It is used to specify 'special' holiday(s) that occur on specific days of the week, specific days of the month, and specific days of a specific week within a month. It can occur as many times as needed, one 'special' holiday per macro entry.

ID='description'

This Operand is used to supply a description for the holiday being defined. Up to 16 characters can be specified. FSI-JMASTER will display this description whenever this holiday is used.

If omitted, a default description will be generated:

'HOLIDAY nn'

where 'nn' is the relative holiday definition within your holiday table.

YEAR=nn

This Operand is used to limit the holiday to a specific year. If this Operand is omitted, the holiday will be assumed to be valid for all years.

SPECIAL=(month,day,qual)

This Operand provides the rules that FSI-JMASTER will use to determine the actual date of the holiday for the current or specified year.

month specifies which month the holiday occurs in. Valid months are:

JAN, FEB, MAR, APR, MAY, JUN, JUL,
AUG, SEP, OCT, NOV, DEC

day specifies the day of week or day of month that the holiday occurs in. Valid days of a week are:

MON, TUE, WED, THU, FRI, SAT, SUN,

specify a number from 01-31 for a day of the month

qual is required if a day of week is specified, and is optional if a day of month is specified.

If you have specified a day of week, this operand specifies which week in the month:

1ST, 2ND, 3RD, 4TH, LAST

If you have specified a day of month, this operand specifies an optional qualification:

WEEKDAY It is only a holiday if it occurs on a weekday (MON-FRI).

FRI If the holiday occurs on a Saturday or a Sunday, the previous Friday is also a holiday.

MON If the holiday occurs on a Saturday or a Sunday, the following Monday is also a holiday.

FRI-MON If the holiday occurs on a Saturday, the previous Friday is also a holiday. If it occurs on a Sunday, the following Monday is also a holiday.

```

CSIHDAY HOLIDAY=(list),
YEAR=nn
    
```

This format is optional. It can occur as many times as needed. It is used to specify a list of 'standard' holidays that you have at your installation.

YEAR=nn

This Operand is used to limit the standard holidays to a specific year. If this Operand is omitted, the holidays will be assumed to be valid for all years.

HOLIDAY=(list)

This Operand provides the list of 'standard' holidays. The following table contains the 'standard' holidays that can be specified and the rules assumed for each:

list name	rules for calculation	Description used for ID=
NEWYEARS	SPECIAL=(JAN,01,FRI-MON)	'NEW YEARS DAY'
MLKING	SPECIAL=(JAN,MON,3RD)	'M.L. KINGS BDAY'
PRESIDENT	SPECIAL=(FEB,MON,3RD)	'PRESIDENTS DAY'
MEMORIAL	SPECIAL=(MAY,MON,LAST)	'MEMORIAL DAY'
JULY4	SPECIAL=(JUL,04,FRI-MON)	'JULY 4TH'
LABOR	SPECIAL=(SEP,MON,1ST)	'LABOR DAY'
VETERAN	SPECIAL=(NOV,11,FRI-MON)	'VETERANS DAY'
THANKS	SPECIAL=(NOV,THU,4TH)	'THANKSGIVING'
XMAS	SPECIAL=(DEC,25,FRI-MON)	'CHRISTMAS'
EASTER	internal exit	'EASTER SUNDAY'
GOODFRI	internal exit	'GOOD FRIDAY'

<pre>CSIHDAY DATE=yymmdd, ID='description'</pre>	X
--	---

This format is optional. It is used to specify holiday(s) that occur on a specific date, usually in only one year. It can occur as many times as needed, one holiday per macro entry.

ID='description'

This Operand is used to supply a description for the holiday being defined. Up to 16 characters can be specified. FSI-JMASTER will display this description whenever this holiday is used.

If omitted, a default description will be generated:

'HOLIDAY nn'

where 'nn' is the relative holiday definition within your holiday table.

DATE=yymmdd

This Operand provides the actual date of the holiday.

```
CSIHDAY EXIT=name,           X
      ID='description'
```

This format is optional. It is used to specify a program that you have written that will determine the holiday date for the specified 'ID'. You can specify as many of these exit macros as you need. Each one must have a unique ID.

ID='description'

This Operand is used to supply a description for the holiday being defined by your exit program. Up to 16 characters can be specified. FSI-JMASTER will pass this ID to your exit program so that it knows which holiday date is required.

EXIT=name

This Operand provides the name of your exit program. This program must be an assembler language program, and will be link edited into your holiday table.

A sample exit program has been provided (CSICDT01). The sample exit program is the internal exit that FSI-JMASTER uses to calculate the dates for Easter and Good Friday. Refer to that source program for information on how to generate your own holiday exit.

Holiday Table Example

The following pages contain a sample Holiday Table and detailed line-by-line explanations.

You must follow assembler language rules when you prepare the CSIHDAY customization macros. Critical points are:

- "CSIHDAY" must start in column 10.
- All other operands on continuation lines must start in column 16.
- Trailing commas and continuation marks (column 72) must be present on every card except the last card of a macro.
- Comments are permitted between the trailing commas and continuation marks, as long as there is at least one space between the comma and the comment.

1...5...10...16...20...25...30...35	..72	Line
CSIHDAY TYPE=INITIAL,	X	(1
EXPIRES=910101,	X	(2
WARNDTE=901101		(3
CSIHDAY HOLIDAY=(NEWYEARS, MEMORIAL,	X	(4
JULY4, LABOR, THANKS, XMAS)		(5
CSIHDAY DATE=891224,	X	(6
ID='CHRISTMAS EVE'		(7
CSIHDAY HOLIDAY=(VETERAN),	X	(8
YEAR=90		(9
CSIHDAY SPECIAL=(DEC, 31, WEEKDAY),	X	(10
ID='NEW YEARS EVE'		(11
CSIHDAY TYPE=FINAL		(12

Notes on Holiday Table Example**Lines 1 through 3:**

The TYPE=INITIAL format must be the 1st entry in your holiday table.

Line 2:

This Operand is optional. It indicates that this holiday table expires on January 1, 1991.

Line 3:

This Operand is used in conjunction with Line 2. It specifies that expiration warning messages should begin on November 1, 1990.

Lines 4 through 5:

This entry specifies that six of the standard holidays are observed. Since the YEAR Operand has not been specified, these holidays occur every year.

Lines 6 through 7:

This entry specifies that 'Christmas Eve' is a holiday only in 1989.

Lines 8 through 9:

This entry specifies that the standard holiday 'Veterans day' will only be observed in 1990.

Lines 10 through 11:

This entry specifies that the holiday 'New Years Eve' will be observed in any year in which it falls on a weekday.

Line 12:

This Operand is required. It must be the last macro entry in your Holiday Table.

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