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Editor
Robert Burgess

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Recent CICS Log Manager enhancements

INTRODUCTION
There have been several recent APARs raised against the CICS Log Manager Domain that have enhanced the function of this component of CICS. This article describes the background to these alterations, and gives the relevent APAR and PTF numbers so that readers can opt to install this CICS service if they choose.

CICS TRANSACTION SERVER
This article makes reference to CICS Transaction Server for OS/390 Releases 1 and 2. The CICS Transaction Server is a member of the OS/390 family of MVS-based software servers.

IBM has recently announced the latest release in the CICS Transaction Server series – CICS Transaction Server Release 3. The CICS component of CICS Transaction Server Release 3 will have a release number of 0530. Unless otherwise indicated, the enhancements described in this article will be present at the base code level of CICS Transaction Server Release 3, and no additional service need be applied to that release to exploit the particular new function.

THE CICS LOG MANAGER DOMAIN
A detailed overview of the CICS Log Manager Domain is available in The CICS Log Manager, which appeared in CICS Update, Issue 151, June 1998.

APAR PQ14545/PTF UQ17321
During an emergency restart of CICS (from CICS Transaction Server Release 1 onwards), the CICS Recovery Manager Domain invokes the Log Manager Domain to read backwards through the CICS system log and retrieve data needed to reinstate the recoverable environment of the CICS system. However, a backwards scan of the system log now occurs on all types of CICS restart except a TYPE=INITIAL (which was not the case with earlier releases of CICS, such as CICS/
ESA Release 4.1.0 and below). CICS/ESA Release 4.1.0 only had need to revisit the system log data from the previous run of CICS when performing an emergency restart operation.

If CICS Transaction Server is emergency restarted, for whatever reason (such as a TSO cancel, SHUTIMMEDIATE, or power failure), there is the likelihood that tasks were present on the system at the time of the CICS termination that had made changes to recoverable resources. These may be resources internal to CICS (eg temporary storage or transient data queues, VSAM files, etc) or external ones under the control of External Resource Managers such as DBCTL, DB2, or MQSeries. The in-flight tasks would have written recovery information to the CICS system log as part of their UOWs, for changes to internal CICS resources, or had the relevant External Resource Manager write its own recovery information to record updates to external resources.

Prior to the failure and emergency restart, CICS Recovery Manager Domain would have maintained unit of work state data representing the UOWs present on the system up to the point of failure. Likewise, the CICS Log Manager Domain would have maintained control blocks and state data representing what was written to the CICS system log for each UOW. The log data is held as logical chains of connected log records, interspersed with the log data for all the UOWs on the system and written out in MVS log blocks to the CICS system log.

A subsequent emergency restart operation would drive the Recovery Manager Domain to rebuild the UOWs for all the in-flight tasks at the point of the CICS failure. This would involve Recovery Manager invoking Log Manager to retrieve the log data for each UOW’s log chain.

Having read back to the start of the log data for each UOW, Recovery Manager would then have rebuilt a CICS environment with a recoverable state consistent with the one that had existed prior to the CICS failure and emergency restart. CICS could then back out the in-flight changes in a controlled manner and restore CICS and all its associated recoverable resources to a committed state once more.

Such a backwards scan of the CICS system log would normally be expected to complete reasonably quickly, and not be a major part of
the emergency restart operation as a whole. However, this is not always the case. Certain users have tasks that update many thousands (even millions) of recoverable resources in the same Unit Of Work. This is not regarded as good CICS application programming practice, because CICS has to hold any locks on recoverable resources until the end of a UOW, and so changes that in fact update many different items can result in enqueue delays for other CICS tasks attempting to access the same resources. Also, a subsequent failure and dynamic transaction backout of such a task would take a considerable amount of time. This is because the log chain for the UOW being backed out has to be read backwards and the ‘before images’ of log data have to be used to restore each recoverable resource to its previously committed state.

It is this latter point that holds true for emergency restart processing too, since the Recovery Manager Domain requires the whole log chain for a UOW to be read to ensure that the UOW state data is rebuilt correctly. If the in-flight tasks represented UOWs that had updated millions of recoverable resources, the portion of time spent scanning backwards through the system log during emergency restart would take much longer to complete. This extended delay would be compounded by the symptoms presented to the CICS operator while it was taking place. No console messages were issued to indicate the backwards scan was continuing. However, CICS would be very busy during the period and the region would be consuming CPU as it repeatedly drove CICS and MVS Logger code to retrieve successive log records. In short, there was no evidence to indicate CICS was not stuck in some processor-intensive loop. For very long delays during such a CICS system log scan, the temptation to cancel and retry the emergency restart could be considerable.

In order to improve this situation, APAR PQ14545/PTF UQ17321 was shipped against CICS Transaction Server Release 2. This APAR modified the CICS Log Manager Domain to issue various messages during the log scan process, to indicate the series of events taking place. Examples of some of these messages are shown in Figure 1. Here, the (edited) joblog for an emergency restart of CICS is shown. The CICS Log Manager issues message DFHLG0745 to indicate the backwards scan of the system log is about to begin. CICS then reads back sequentially until such time it determines that the log chain data for each UOW is ‘disjoint’ (that is, unrelated to other UOW log data). At that point, message DFHLG0748 is issued to indicate that an
optimized backwards scan can begin. CICS then reads back each UOW’s log chain. After ‘n’ records have been encountered (where ‘n’ is the greater of 500 and half the AKPFREQ value as defined to CICS), message DFHLG0747 is issued to indicate how many records have been processed so far. This is repeated for every subsequent ‘n’ records encountered until the last log record for the final UOW is read. The CICS Log Manager then issues message DFHLG0749 to indicate the end of backwards scan processing.

In this way, operators monitoring CICS emergency restarts for systems with very large long-running UOWs can see the activity CICS is performing to reinstate its recoverable environment during the emergency restart operations. For most CICS systems, it is not expected that many DFHLG0747 messages would be seen during a restart, because relatively few log records would need to be retrieved from a typical CICS system log to reinstate all UOW information. However, the occasional long-running task (with large UOW) may lead to these new messages being seen.

*Figure 1: Examples of (edited) CICS joblog messages*
When using CICS Transaction Server in a distributed environment, with TORs, AORs, and DORs, users reported unexpectedly large sizes for their DFHSHUNT portions of the CICS system log on the DORs. In some cases, the volume of data on DFHSHUNT was growing at a consistent rate and resulting in spillage of the log records from their primary storage in the Coupling Facility structure onto secondary DASD storage. Analysis of the problem showed that it was because of a subtle result of the way CICS Transaction Server represented UOW’s syncpoint status.

When an EXEC CICS command is function shipped from an AOR to a DOR, CICS processes the request under a mirror task running on the DOR. This mirror task will issue the function shipped EXEC CICS requests and send the results back across the session connecting it to the ‘real’ task running on the AOR. When the application terminates or issues an EXEC CICS SYNCPOINT, CICS Recovery Manager will coordinate the UOWs on both sides of the session to ensure that all participants in the distributed unit of work are synchronized with respect to each other. At the end of its syncpoint operation for the mirror task, the DOR will send a ‘committed’ response back to the AOR to confirm that the syncpoint was processed successfully. The mirror task can then terminate; however, the underlying UOW cannot be discarded at this point. CICS Recovery Manager has to be sure that the committed response sent back across the session was received successfully on the AOR. It does this by means of the ‘implicit forget’ mechanism, in which a new inbound flow being received across the session indicates that the previous outbound flow has been successfully received.

For systems with large numbers of connected sessions, it may be a considerable time before a session is reused and an implicit forget flow received on the DOR. For example, all the possible sessions available may be used concurrently only at times of peak workflow. Once the peak has passed, the high-water mark session may not be reused until the same level of intersystem activity recurs. This means that a mirror task’s UOW listening on this session for proof that its committed response was received back on the AOR will have to be retained for this length of time.
Every activity keypoint operation within CICS requires information to be logged about the state of the CICS system. Because the mirror task’s UOW is still on the system while awaiting a forget flow, subsequent activity keypoints on the DOR will log this information. After two successive keypoints, when a UOW has not explicitly logged any data to the system log, its log records are moved from the DFHLOG to DFHSHUNT logstreams. Therefore, for those mirror task UOWs awaiting implicit forget flows to be received on the DOR, their log data would be transferred to DFHSHUNT. Additional keypoint information would then be written to their log chains on each successive activity keypoint until the session associated with them was eventually reused. This additional keypoint data would then in turn be moved on subsequent keypoints, and so on.

APAR PQ14796/PTF UQ18652 was shipped against CICS Transaction Server Release 2 to resolve this problem. It enhanced the Log Manager Domain to reclassify certain log record types as not requiring chain movement to DFHSHUNT during a keypoint operation. This prevented the moved log chains for the mirror task UOWs from growing unnecessarily large on the secondary CICS system logstream. This fix was later applied to CICS Transaction Server Release 1 as APAR PQ21018/PTF UQ23997.

APAR PQ04998/PTF UQ07483

With the introduction of logical chains of log records interspersed along the CICS system logstreams, there was a requirement on DFHJUP to help interpret the log data more helpfully when processing a CICS logstream to print out the records contained there. APAR PQ04998/PTF UQ07483 was raised against CICS Transaction Server Release 1 to provide this additional information.

The APAR modified DFHJUP so that each log block is now preceded by additional information – the MVS System Logger block identifier, the length of the log block, and the GMT and local timestamp for when it was written. The block following this information is then broken down into the individual records, and a new column precedes each record, giving the offset (in hexadecimal) of the start of that record from the start of its block.
This enhancement is present in the base level of CICS Transaction Server Release 2.

APAR PQ09028/PTF UQ13627 AND UQ13628

The JCL for submitting batch jobs to manipulate logstream data provides support for the COMPAT41 option on the SUBSYS parameter. This specifies that when the job is run against a user journal (ie not a CICS system logstream), the output is to be in as similar a format as possible to a CICS/ESA Release 4.1.0 journal.

Users with existing batch COBOL applications that opened user journals in Variable Blocked (VB) format, as specified on the DCB, reported that the output from the underlying logstream was incorrect when COMPAT41 was specified. An extra four-byte LLBB field was being appended at the start of the records. This meant that existing applications expecting certain data to be at specific offsets within a log record were failing because of these additional four bytes at the start.

In fact, the logstream emulation of the BSAM OPEN macro call modifies the DCB of the journal to Undefined (U) format. This means that when a record is returned from a BSAM GET request, COBOL compiler-generated code will not adjust the pointer to the start of the record data by four bytes (to skip over the LLBB) as it would do for a VB format record.

To resolve this problem, APAR PQ09028 was raised against CICS Transaction Server Releases 1 and 2. It introduced a new SUBSYS option of COMPAT41V for batch COBOL jobs run against CICS user journal logstreams. If this is specified, records are returned to the applications in undefined format as per COMPAT41, but with the record data adjusted so that the four-byte LLBB is removed from the beginning. This then removes the inconsistency for batch COBOL programs.

COMPAT41 has been left unchanged, so that (eg Assembler) applications expecting an LLBB at the start of a record still work as expected.

APAR PQ09028 also introduced a new parameter called NEWDCB for the OPTION COPY command of DFHJUP. This is used to prevent DFHJUP from using the DCB of the input dataset as the DCB for the
output dataset (that is, the destination for the COPY operation). It is required because the input dataset (as specified on SYSUT1 for DFHJUP) is set to Undefined format at open time if it relates to a logstream. For traditional BSAM log datasets, as used with CICS/ESA Release 4.1.0, the input dataset format would be Variable Blocked. The result of this inconsistency was that the output dataset would be incorrectly blocked as a result of the COPY operation, with one record per block. This led to space inefficiency on the output dataset.

To avoid this, NEWDCB can be specified, and the DCB information to be used be supplied via JCL for the output dataset. This allows the output dataset to be in VB format, and hence the blocking of records to occur.

Note there is no guarantee that the blocking emulation will match that of copied records in CICS/ESA Release 4.1.0. In particular, label records may not be placed at the start of each block. This is because the CICS Subsystem Interface exit module DFHLGCV (as specified on the SUBSYS card on the JCL DD statement) returns log data record by record and not block by block. The COPY output dataset will block these records as optimally as possible, based on the output dataset buffer size, and the existence of a label record will not affect the position of the record within a block.

PQ17925/PTF UQ22595 AND UQ22596

When CICS Transaction Server Release 1 was developed, various performance models were reviewed to determine the best way to provide a comparable internal transaction rate and CPU cost between the same workload on both CICS Transaction Server and CICS/ESA Release 4.1.0.

Since log management was completely rewritten between these releases, with DFHJCP and BSAM I/O being replaced by the Log Manager Domain and MVS System Logger services, the requirement for comparable throughput and CPU usage had to take into account the changes in this area of CICS. As the pathlength (and CPU cost) of executing an IXGWRITE macro call to write data to the MVS System Logger was greater than the equivalent BSAM WRITE call, there was the need to provide a delay within the CICS Log Manager to defer an
I/O operation for some period of time and allow other tasks to store their own log data in the same log buffer before invoking IXGWRITE to harden it. If such a delay did not occur, IXGWRITE calls would be made at the same rate as BSAM WRITEs, all things being equal. Such a situation would therefore increase the pathlength and CPU costs per transaction.

Performance evaluations of typical CICS transaction workloads indicated that a delay value of 30ms gave comparable transaction rates and CPU costs between CICS Transaction Server and CICS/ESA Release 4.1.0. This value was used as the default delay period. It could be tuned (under strict supervision by IBM support staff) by means of the LGDFINT SIT parameter, where LGDFINT stands for Log Defer Interval.

Certain user environments gained little benefit from such a built-in delay within CICS log management. In the case of a task updating many records on a physically recoverable transient data queue, with a syncpoint operation after each update, each log write would need to be forced to the system log and the task synchronized on this journal I/O before it could proceed. Without concurrent task activity, no other log records would be added to the log buffers during each defer interval period, and the task would spend periods of its elapsed time waiting with no benefit to the overall CICS transaction throughput or CPU costs.

To address this situation, APAR PQ17925/PTFs UQ22595 and UQ22596 were raised against CICS Transaction Server Releases 1 and 2. This APAR fully documented the log defer interval function, to help with tuning requirements, and also externalized the function via the CICS SPI and CEMT. The INQUIRE and SET SYSTEM commands now support the LOGDEFER option, which can be changed dynamically to vary the log defer interval without the need for a restart of CICS.

The range of allowable settings for LOGDEFER are from 0 through to 65,535ms, with the default remaining at 30ms. Users need to be aware that CICS performance can be adversely affected by a change to the log defer interval value. Too high a setting will delay CICS transaction throughput because of the additional wait before invoking the MVS System Logger to perform each IXGWRITE call. Although the range of possible values is from 0 to 65,535ms, in most cases the
default of 30ms should be considered the correct order of magnitude when setting the parameter.

A log delay interval of less than 30ms will reduce the delay in the CICS Log Manager before invoking the MVS System Logger to perform the IXGWRITE call. This will improve the transaction response time, but increase the CPU cost for the system because CICS will buffer fewer journal requests into a given call to the MVS System Logger and so have to invoke the IXGWRITE macro more often.

Conversely, increasing the log defer interval value above 30ms will impact the transaction response time because CICS will increase the delay period before invoking the IXGWRITE macro. However, more transactions will be able to write their own log data into the same log buffer before it is written to the MVS System Logger and hence the total CPU cost of driving IXGWRITE calls will be reduced.

It is not recommended that the log defer interval value be modified in a production CICS environment without a prior system evaluation and performance analysis of any changed value. For most users, the default setting of 30ms should prove adequate for their system’s needs.

APAR PQ17993/PTF UQ22255

CICS Transaction Server supplies a Journalmodel RDO Object for use in defining journals to CICS. This allows the mapping of journal names to MVS System Logger logstreams. The definition capability for this type of RDO resource includes support for symbolic name substitution of certain variable components within a logstream name. As supplied with CICS Transaction Server initially, these were &USERID, &APPLID, and &JNAME. When the Journalmodel was used by CICS, these symbolic variable names were resolved to the values of the user-id, application-id, and journal name respectively.

There was a user requirement that the Journalmodel object also supported symbolic substitution of a value to resolve to the system-id of the CICS system in question. This was addressed by APAR PQ17993/PTF UQ22255 at CICS Transaction Server Release 2. The new symbolic parameter &SYSID was introduced to allow dynamic setting of the sysid value into logstream names when using the Journalmodel.
The MVS System Logger maximum limit of 26 characters for a logstream name means that all four symbolic fields cannot be included in the same entry. However, users can elect to use any combination of up to three of the four possible values when defining the logstream component of a Journalmodel. As before the enhancement, it is still possible to choose not to use any of the possible symbolic fields.

SUMMARY AND CONCLUSIONS

I hope that this article has helped explain the background to these enhancements to the CICS Logger Domain and associated utilities, why they were provided, and the considerations needed when using them and interpreting the output they produce.

Readers wishing to discuss the material in this article further are welcome to contact me via e-mail at andy_wright@uk.ibm.com.

Andy Wright
CICS Change Team Programmer
IBM (UK)

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CICS system generator – part 2

This month we continue the article to develop a tool that generates CICS regions on different LPARs.

CICSDEFI

/* REXX */
ADDRESS TSO
"ALLOC F(ISPFILE) DA('your.JCL.library') SHR REUSE"
USERID=USERID()
ADDRESS ISPEXEC
"LIBDEF ISPSLIB DATASET ID('your.JCL.library')"
DO
"DISPLAY PANEL (CICSDEFI)"
SYS='CIC'||SYSID
NODE=SUBSTR(LPAR,3,2)
ENV=SUBSTR(SYS,4,1)
'FTOPEN'
'FTINCL CICSDEFI'
'FTCLOSE NAME(CICSDEFI)'

"EDIT DATASET('your.JCL.library(CICSDEFI)') PANEL(SUBMIT)"
END
/* "DISPLAY PANEL (CICSBUIL)" */

CICSDEFI

ADDRESS TSO
"ALLOC F(ISPFILE) DA('your.JCL.library') SHR REUSE"
USERID=USERID()
ADDRESS ISPEXEC
"LIBDEF ISPSLIB DATASET ID('your.skel.library')"
DO
"DISPLAY PANEL (CICSDEFI)"
SYS='CIC'||SYSID
'FTOPEN'
'FTINCL CICSDEFI'
'FTCLOSE NAME(CICSDEFI)'
"EDIT DATASET('your.JCL.library(CICSDEFI)') PANEL(SUBMIT)"
END
/* "DISPLAY PANEL (CICSBUIL)" */

CICSDEFF

/* REXX */
ADDRESS TSO
"ALLOC F(ISPFILE) DA('your.JCL.library') SHR REUSE"
USERID=USERID()
ADDRESS ISPEXEC
"LIBDEF ISPSLIB DATASET ID('your.skel.library')"
DO
"DISPLAY PANEL (CICSDEFF)"
SYS='CIC'||SYSID
EMP="&"
'FTOPEN'
'FTINCL CICSDEFF'
'FTCLOSE NAME(CICSDEFF)'
"EDIT DATASET('your.JCL.library(CICSDEFF)') PANEL(SUBMIT)"
END
/* "DISPLAY PANEL (CICSBUIL)" */

CICSDEFR

ADDRESS TSO
"ALLOC F(ISPFILE) DA('your.JCL.library') SHR REUSE"
USERID=USERID()
ADDRESS ISPEXEC
"LIBDEF ISPSLIB DATASET ID('your.skel.library')"
DO
"DISPLAY PANEL (CICSDEFR)"

14 © 1999. Xephon UK telephone 01635 33848, fax 01635 38345. USA telephone (940) 455 7050, fax (940) 455 2492.
SYS='CIC'||SYSID
'FTOPEN'
'FTINCL CICSDEFR'
'FTCLOSE NAME(CICSDEFR)'
"EDIT DATASET('your.JCL.library(CICSDEFR)') PANEL(SUBMIT)"
END
/* "DISPLAY PANEL (CICSBUIL)" */

CICSDEFS

/* REXX */
ADDRESS TSO
"ALLOC F(ISPFILE) DA('your.JCL.library') SHR REUSE"
USERID=USERID()
ADDRESS ISPEXEC
"LIBDEF ISPSLIB DATASET ID('your.skel.library')"
DO
"DISPLAY PANEL (CICSDefs)"
SYS='CIC'||SYSID
'FTOPEN'
'FTINCL CICSDEFS'
'FTCLOSE NAME(CICSDEFS)'
"EDIT DATASET('your.JCL.library(CICSDEFS)') PANEL(SUBMIT)"
END
/* "DISPLAY PANEL (CICSBUIL)" */

CICSDEFW

/* REXX */
ADDRESS TSO
"ALLOC F(ISPFILE) DA('your.JCL.library') SHR REUSE"
USERID=USERID()
ADDRESS ISPEXEC
"LIBDEF ISPSLIB DATASET ID('your.skel.library')"
DO
"DISPLAY PANEL (CICSDEFW)"
SYS='CIC'||SYSID
'FTOPEN'
'FTINCL CICSDEFW'
'FTCLOSE NAME(CICSDEFW)'
"EDIT DATASET('your.JCL.library(CICSDEFW)') PANEL(SUBMIT)"
END
/* "DISPLAY PANEL (CICSBUIL)" */

CICSIVPB

/* REXX */
ADDRESS TSO
"ALLOC F(ISPFILE) DA('your.JCL.library') SHR REUSE"
USERID=USERID()
ADDRESS ISPEXEC
"LIBDEF ISPSLIB DATASET ID('your.skel.library')"
DO
"DISPLAY PANEL (CICSIVPB)"
SYS='CIC'||SYSID
'FOPEN'
'FTINCL CICSIVPB'
'FTCLOSE NAME(CICSIVPB)'
"EDIT DATASET('your.JCL.library(CICSIVPB)') PANEL(SUBMIT)"
END
/* "DISPLAY PANEL (CICSBUIL)" */

CICSRACF
/* REXX */
ADDRESS TSO
"ALLOC F(ISPFILE) DA('your.RACF.control.dataset') SHR REUSE"
USERID=USERID()
CALL PWGEN
PW=RESULT
PW1=WORD(PW,1)
PW2=WORD(PW,2)
APPL='A'||SUBSTR(LPAR,3,2)||'CIC'||SYS
ADDRESS ISPEXEC
"LIBDEF ISPSLIB DATASET ID('your.skel.library')"
DO
"DISPLAY PANEL (CICSRACF)"
SYS='CIC'||SYSID
APPL='A'||SUBSTR(LPAR,3,2)||SYS
'FOPEN'
'FTINCL CICSRACF'
'FTCLOSE NAME(CICSRACF)'
"EDIT DATASET('your.RACF.control.dataset(CICSRACF)')"
'FOPEN'
'FTINCL RACFTPCLI'
'FTCLOSE NAME(RACFTPCLI)'
"EDIT DATASET('your.RACF.control.dataset(RACFTPCLI)')"
END
"DISPLAY PANEL (CICSBUIL)"

CICS GENERATOR MESSAGE DEFINITIONS
The following message is invoked:

CICST00
CICSTØØ1 'Enter required field' .ALARM=YES 'value not valid !'
CICS GENERATOR SKELETON DEFINITIONS

The following skeleton JCL jobstreams are invoked:

**CICSDEFA**

```
//&USERID.P JOB     (ACCT#),"INSTALL",CLASS=A,MSGCLASS=X,
//     NOTIFY=&USERID
//*******************************************************************************/
/*ROUTE  XEQ &LPAR
*******************************************************************************/
//DELETE    EXEC PGM=IDCAMS,REGION=1M
//SYSPRINT DD SYSOUT=*  
//SYSPRINT DD SYSOUT=*  
//DELETE &SYS..JCLLIB NONVSAM
DELETE &SYS..TABSRC NONVSAM
DELETE &SYS..TABLOAD NONVSAM
DELETE &SYS..DFHJPDS NONVSAM
SET MAXCC=0
/*
//DEFLIBS  EXEC PGM=IEFBR14
//DD1      DD DISP=(NEW,CATLG,DELETE),
// DSN=&SYS..JCLLIB,  
// SPACE=(CYL,(1,1,20)),UNIT=SYSDA,VOL=SER=&VOL,  
// DCB=(BLKSIZE=6160,RECFM=FB,LRECL=80,DSORG=PO)  
//DD2      DD DISP=(NEW,CATLG,DELETE),
// DSN=&SYS..TABSRC,  
// SPACE=(CYL,(1,1,20)),UNIT=SYSDA,VOL=SER=&VOL,  
// DCB=(BLKSIZE=6160,RECFM=FB,LRECL=80,DSORG=PO)  
//DD3      DD DISP=(NEW,CATLG,DELETE),
// DSN=&SYS..TABLOAD,  
// SPACE=(CYL,(2,1,20)),UNIT=SYSDA,VOL=SER=&VOL,  
// DCB=(BLKSIZE=18432,RECFM=U,DSORG=PO)  
//DD4      DD DISP=(NEW,CATLG,DELETE),
// DSN=&SYS..DFHJPDS,  
// SPACE=(TRK,(2,1,2)),UNIT=SYSDA,VOL=SER=&VOL,  
// DCB=(BLKSIZE=400,RECFM=FB,LRECL=80,DSORG=PO)  
//*******************************************************************************/
/* ADD SITOVER TO TABSRC
*******************************************************************************/
//CICSSIT EXEC PGM=IEBUPDTE,PARM=NEW,COND=(4,LT)
//SYSPRINT DD SYSOUT=*  
//SYSDUMP DD SYSOUT=*  
//SYSGTF    DD DISP=SHR,DSN=&SYS..TABSRC
//SYSSIN   DD DATA
// ADD NAME=SITOVER
INITPARM=(DSN2STRT='&SYSID,&DB2SYS+'&MQHAAK
&MQSERIE1.&MQSERIE2.&MQSERIE3.&MQSYS.&MQSERIE4
PRVMOD=(DFHDMRM,
DFHPLT,&SYSID,

DFHEICRE,
IBMBPSLA,
IBMBPSMA),
./ ENDUP
/*
//*************************************************
//*    ADD DFH$ARCH TO DFHJPDS                    *
//*************************************************
*/
/  ADD DFH$ARCH TO DFHJPDS
/  ENDUP

EXEC PGM=IEBUPDTE,PARM=NEW,COND=(4,LT)
/  ADD NAME=DFH$ARCH

EXEC PGM=IEBUPDTE,PARM=NEW,COND=(4,LT)
/  ADD NAME=DFH$ARCH

EXEC PGM=IEFBR14,COND=(Ø,NE)
/  ARCH EXEC PGM=IEFBR14,COND=(Ø,NE)

EXEC PGM=IEBGENER, AND UNCOMMENT THE JCL CARDS
*/

EXEC PGM=DFHJACDU,
/  CHECK EXEC PGM=DFHJACDU,

EXEC PGM=DFHJACDU,
/  CHECK EXEC PGM=DFHJACDU,

EXEC PGM=DFHJACDU,
/  CHECK EXEC PGM=DFHJACDU,

EXEC PGM=DFHJACDU,
/  CHECK EXEC PGM=DFHJACDU,
CICSDEFC

//&USERID.D JOB (,EXP),'INSTALL'.
// NOTIFY=&USERID,
// CLASS=A,MSGCLASS=X,MSGLEVEL=(1,1).
// TIME=3
/**
/*ROUTE XEQ &LPAR
/**
/** THIS JOB DELETES AND (RE)CREATES
/** CICS SYSTEM CATALOG DATA SETS AND THE INITIAL CSD FILE
/** AND CREATES A LIST WITH NAME &SYSID
/**
/**
/**
//DELETE EXEC PGM=IDCAMS,REGION=1M
//SYSPRINT DD SYSOUT=* //SYSIN DD *
DELETE &SYS..DFHGCD
DELETE &SYS..DFHLCD
DELETE &SYS..DFHCSD
SET MAXCC=Ø /*
//DEFINE EXEC PGM=IDCAMS,REGION=1M
//SYSPRINT DD SYSOUT=* //SYSIN DD *
/* DEFINE A CICS GLOBAL CATALOG */ /*
/* DEFINE A CICS LOCAL CATALOG */
/* DEFINE CLUSTER(NAME(&SYS..DFHGCD)-
 INDEXED -
 CYL(1 1)-
 SHR(2)-
 FREESPAC(10 10)-
 REUSE -
 VOLUMES(&VOL)) -
 DATA(NAME(&SYS..DFHGCD.DATA)-
 CISZ(8192)-
 KEYS(28 Ø))- INDEX(NAME(&SYS..DFHGCD.INDEX)-
 IMBED -
 REPLICATE) */
/*
/* DEFINE A CICS LOCAL CATALOG */
/*
/* DEFINE CLUSTER(NAME(&SYS..DFHLCD)-
 INDEXED -
 TRK(5 1)-
 SHR(2)-
 FREESPAC(10 10)-
 REUSE -
 VOLUMES(&VOL)) -
DATA(NAME(&SYS..DFHLCD.DATA) -
    KEYS(28 Ø) -
    RECORDSIZE(45 124) -
    CISZ(2048)) -
INDEX(NAME(&SYS..DFHLCD.INDEX) -
    IMBED -
    REPPLICATE)
/* */
/* DEFINE AN INITIAL CSDFILE */
/* */
DEFINE CLUSTER(NAME(&SYS..DFHCSD) -
    IXD -
    REC(4000) -
    RECORDSIZE(100 500) -
    FREESP(5 5) -
    SHR(2) -
    VOLUMES(&VOL)) -
DATA(NAME(&SYS..DFHCSD.DATA) -
    UNIQUE -
    KEYS(22 Ø)) -
INDEX(NAME(&SYS..DFHCSD.INDEX) -
    UNIQUE)
/* */
/**
//INITGCD EXEC PGM=IDCAMS,REGION=1M
/**
// INITIALIZE THE GLOBAL CATALOG DATASET
/**
//SYSPRINT DD SYSOUT=* 
//GCDREC DD DSN=CICS&VRM..SDFHINST(DFHINST0),DISP=SHR 
//GCD DD DSN=&SYS..DFHGCD,DISP=SHR 
//SYSIN DD *
//REPRO INFILE(GCDREC) OUTFILE(GCD)
/* */
/**
//INITLCD EXEC PGM=DFHCCUTL
/**
// INITIALIZE THE LOCAL CATALOG DATASET
/**
//STEPLIB DD DSN=CICS&VRM..SDFHLOAD,DISP=SHR 
//SYSPRINT DD SYSOUT=* 
//SYSDUMP DD SYSOUT=* 
//DFHLCD DD DSN=&SYS..DFHLCD,DISP=SHR
/* */
//INITCSD EXEC PGM=DFHCSDUP,REGION=1M
/* */
/* INITIALIZE THE CSD 
/* */
//STEPLIB DD DSN=CICS&VRM..SDFHLOAD,DISP=SHR 
//DFHCSD DD DSN=&SYS..DFHCSD,DISP=SHR 
//SYSUT1 DD UNIT=SYSDA,SPACE=(1024,(100,100)) 
//SYSPRINT DD SYSOUT=*
//SYSIN DD *
INITIALIZE
***
/* ADDS THE LIST TO THE CSD FILE
***
//LIST EXEC PGM=DFHCSDUP
//STEPLIB DD DSN=CICS&VRM..SDFHLOAD,DISP=SHR
// DD DSN=SYS1.COB2LIB,DISP=SHR
//DFHCSD DD DSN=&SYS..DFHCSD,DISP=SHR
//SYSABOUT DD SYSOUT=X
//SYSPRINT DD SYSOUT=* 
//SYSIN DD *
ADD GR(DFHAKP ) LIST(CIC&ENV)
ADD GR(DFHMISC3) LIST(CIC&ENV)
ADD GR(DFHBACK ) LIST(CIC&ENV)
ADD GR(DFHMS  ) LIST(CIC&ENV)
ADD GR(DFHCONS ) LIST(CIC&ENV)
ADD GR(DFHDLI ) LIST(CIC&ENV)
ADD GR(DFHEDF ) LIST(CIC&ENV)
ADD GR(DFHFE  ) LIST(CIC&ENV)
ADD GR(DFHHARDC) LIST(CIC&ENV)
ADD GR(DFHINQUI) LIST(CIC&ENV)
ADD GR(DFHINTER) LIST(CIC&ENV)
ADD GR(DFHISC  ) LIST(CIC&ENV)
ADD GR(DFHJRNLT) LIST(CIC&ENV)
ADD GR(DFHMISC3) LIST(CIC&ENV)
ADD GR(DFHMSWIT) LIST(CIC&ENV)
ADD GR(DFHOPCLS) LIST(CIC&ENV)
ADD GR(DFHOPER ) LIST(CIC&ENV)
ADD GR(DFHRMI  ) LIST(CIC&ENV)
ADD GR(DFHRSEND) LIST(CIC&ENV)
ADD GR(DFHRSPPLG) LIST(CIC&ENV)
ADD GR(DFH$SIGN ) LIST(CIC&ENV)
ADD GR(DFHSPIX ) LIST(CIC&ENV)
ADD GR(DFHSTAND) LIST(CIC&ENV)
ADD GR(DFHVTAM ) LIST(CIC&ENV)
ADD GR(DFHVTAMP) LIST(CIC&ENV)
ADD GR(DFHTYPE ) LIST(CIC&ENV)
ADD GR(DFHTERM ) LIST(CIC&ENV)
ADD GR(DFH$UTIL) LIST(CIC&ENV)
ADD GR(DFHEDP  ) LIST(CIC&ENV)
ADD GR(DFHDB2  ) LIST(CIC&ENV)

CICSDEFD

//&USERID.T JOB (,EXP),'&USERID',
// NOTIFY=&USERID,
// CLASS=A,MSGCLASS=X,MSGLEVEL=(1,1),
// TIME=3
///*
/*ROUTE XEQ &LPAR
///*
/* THIS JOB DELETES AND RECREATES
/* CICS TRACE AND DUMP DATASETS
/*
/*
/*DELETE EXEC PGM=IDCAMS,REGION=1M
//SYSPRINT DD SYSOUT=* 
//SYSIN DD *
DELETE &SYS..DFHAUXT NONVSAM
DELETE &SYS..DFHBUXT NONVSAM
DELETE &SYS..DFHDMPA NONVSAM
DELETE &SYS..DFHDMPB NONVSAM
SET MAXCC=Ø
/*
//DEFTRACE EXEC PGM=IEFBR14
//DD1 DD DISP=(NEW,CATLG,DELETE),
// DSN=&SYS..DFHAUXT,
// SPACE=(CYL,(1)),UNIT=SYSDA,VOL=SER=&VOL,
// DCB=(BLKSIZE=4096,RECFM=F,LRECL=4096)
//DD2 DD DISP=(NEW,CATLG,DELETE),
// DSN=&SYS..DFHBUXT,
// SPACE=(CYL,(1)),UNIT=SYSDA,VOL=SER=&VOL,
// DCB=(BLKSIZE=4096,RECFM=F,LRECL=4096)
/*
//DEFDUMP EXEC PGM=IEFBR14
//DD1 DD DISP=(NEW,CATLG,DELETE),
// DSN=&SYS..DFHDMPA,
// SPACE=(CYL,(5)),UNIT=SYSDA,VOL=SER=&VOL,
// DCB=(BLKSIZE=3276Ø,RECFM=V8,LRECL=32756,DSORG=PS)
//DD2 DD DISP=(NEW,CATLG,DELETE),
// DSN=&SYS..DFHDMPB,
// SPACE=(CYL,(5)),UNIT=SYSDA,VOL=SER=&VOL,
// DCB=(BLKSIZE=3276Ø,RECFM=V8,LRECL=32756,DSORG=PS)
/*

CICSDEFI

//&USERID.P JOB (ACCT#),'INSTALL',CLASS=A,MSGCLASS=X,
// NOTIFY=&USERID
//***************************************************************************/
/* JOB NAME = CICSPROC */
/*
/* DESCRIPTIVE NAME = INSTALLATION JOB STREAM */
/*
/* FUNCTION = MVS MODIFICATIONS */
/*
/* PSEUDOCODE = */
/* CICSIIPM STEP FOR UPDATING THE MVS PROCLIB WITH CICS: */
/* 1) STARTUP PROCEDURES */
/*
/* NOTES = */
/* PLEASE CHECK THIS JOB CAREFULLY TO ENSURE THAT THE SYSTEM */

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ADD CATALOGED PROCEDURES TO PROCLIB

ROUTE XEQ &LPar

CICSIPM EXEC PGM=IEBUPDTE,PARM=NEW,COND=(4,LT)

SYSPRINT DD SYSOUT=*  
SYSUDUMP DD SYSOUT=*  
SYSUT2 DD DISP=SHR,DSN=&SYS..TABSRC  
SYSIN DD DATA

ADD NAME=DFH$DCTD

TITLE 'DFH$DCTD - COPYBOOK OF ALL DCT SDSCI ENTRIES'

LOGUSR DFHDCT TYPE=SDSCI, FOR CICS SAMPLE APPLICATIONS X
BLKSIZE=136, X
BUFNO=1, X
DSCNAME=LOGUSR, X
RECFORM=VARUNB, X
RECSIZE=132, X
TYPEFLE=OUTPUT

MSGUSR DFHDCT TYPE=SDSCI, FOR CICS MESSAGES AND SHUTDOWN X
BLKSIZE=136, X
BUFNO=1, X
DSCNAME=MSGUSR, X
RECFORM=VARUNB, X
RECSIZE=132, X
TYPEFLE=OUTPUT

PLIMSG DFHDCT TYPE=SDSCI, PL/I OPTIMIZER MESSAGES AND DUMPS X
BLKSIZE=137, X
BUFNO=1, X
DSCNAME=PLIMSG, X
RECSIZE=133, X
RECFORM=VARUNBA, X
TYPEFLE=OUTPUT

COUT DFHDCT TYPE=SDSCI, C/37Ø output X
BLKSIZE=137, X
BUFNO=1, X
DSCNAME=COUT, X
RECSIZE=133, X
RECFORM=VARUNBA, X
TYPEFLE=OUTPUT

CEEMSG DFHDCT TYPE=SDSCI, LE/37Ø ERROR QUEUE X
DSCNAME=CEEMSG, X
BLKSIZE=165, X
RECSIZE=161, X
RECFORM=VARUNB, X
TYPEFLE=OUTPUT, X
BUFNO=1
<table>
<thead>
<tr>
<th>DFHDCT Type</th>
<th>Destination</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CEEOUT</strong></td>
<td>LE/37Ø Output Queue</td>
<td>X</td>
</tr>
<tr>
<td>DSCNAME=CEEOUT,</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>BLKSIZE=137,</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>RECSIZE=133,</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>RECFORM=VARUNB,</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>TYPEFILE=OUTPUT,</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>BUFNO=1</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>ADD NAME=DFH$DCTR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TITLE 'DFH$DCTR - COPYBOOK OF DCT ENTRIES FOR BASIC CICS FACILITIES'</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CPLI</strong></td>
<td>PL/I SYSPRINT Output</td>
<td>X</td>
</tr>
<tr>
<td>DESTID=CPLI,</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>DSCNAME=PLIMSG</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CSSL</strong></td>
<td>Used for Messages - SEE</td>
<td>X</td>
</tr>
<tr>
<td>DESTID=CSSL,</td>
<td>INDDEST=CSSL BELOW</td>
<td>X</td>
</tr>
<tr>
<td>DSCNAME=MSGUSR</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CESO</strong></td>
<td>LE/37Ø Output Queue</td>
<td>X</td>
</tr>
<tr>
<td>DESTID=CESO,</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>DSCNAME=CEEOUT</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CESE</strong></td>
<td>LE/37Ø Error Queue</td>
<td>X</td>
</tr>
<tr>
<td>DESTID=CESE,</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>DSCNAME=CEEMSG</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CPLD</strong></td>
<td>PL/I DUMPS</td>
<td>X</td>
</tr>
<tr>
<td>DESTID=CPLD,</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>INDDEST=CPLI</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CSCS</strong></td>
<td>Sign On/Off Security Log</td>
<td>X</td>
</tr>
<tr>
<td>DESTID=CSCS,</td>
<td>INDDEST=CSSL</td>
<td>X</td>
</tr>
<tr>
<td><strong>CADL</strong></td>
<td>CEDA VTAM Resource Logging</td>
<td>X</td>
</tr>
<tr>
<td>DESTID=CADL,</td>
<td>INDDEST=CSSL</td>
<td>X</td>
</tr>
<tr>
<td><strong>CSDL</strong></td>
<td>CEDA Command Logging</td>
<td>X</td>
</tr>
<tr>
<td>DESTID=CSDL,</td>
<td>INDDEST=CSSL</td>
<td>X</td>
</tr>
<tr>
<td><strong>CSFL</strong></td>
<td>File Allocation Messages</td>
<td>X</td>
</tr>
<tr>
<td>DESTID=CSFL,</td>
<td>INDDEST=CSSL</td>
<td>X</td>
</tr>
<tr>
<td><strong>CSKL</strong></td>
<td>Transaction MGR Messages</td>
<td>X</td>
</tr>
<tr>
<td>DESTID=CSKL,</td>
<td>INDDEST=CSSL</td>
<td>X</td>
</tr>
<tr>
<td><strong>CSPL</strong></td>
<td>Program Manager Messages</td>
<td>X</td>
</tr>
<tr>
<td>DESTID=CSPL,</td>
<td>INDDEST=CSSL</td>
<td>X</td>
</tr>
</tbody>
</table>
DESTID=CSPL,            INDEST=CSSL

* CCPI  DFHDCT TYPE=INDIRECT, CPIC MESSAGES                      X
        DESTID=CCPI,            INDEST=CSSL

* CAIL  DFHDCT TYPE=INDIRECT, AITM MESSAGES                      X
        DESTID=CAIL,            INDEST=CSSL

* CSML  DFHDCT TYPE=INDIRECT, SIGN ON/OFF MESSAGES                X
        DESTID=CSML,            INDEST=CSSL

* CSCC  DFHDCT TYPE=INDIRECT, CICS CLIENT ERROR MESSAGES AND      X
        DESTID=CSCC,        TRANSACTION ABEND MESSAGES ETC      X
        INDEST=CSSL

* CSMT  DFHDCT TYPE=INDIRECT, TERMINAL ERROR MESSAGES AND         X
        DESTID=CSMT,        TRANSACTION ABEND MESSAGES ETC      X
        INDEST=CSSL

* CSNE  DFHDCT TYPE=INDIRECT, LOG OF ALLZNAC-PRODUCEDMESSAGES     X
        DESTID=CSNE,            INDEST=CSSL

* CSTL  DFHDCT TYPE=INDIRECT, LOG OF TERMINAL I/O ERRORS          X
        DESTID=CSTL,            INDEST=CSSL

* CDBC  DFHDCT TYPE=INDIRECT, DATABASE LOG                        X
        DESTID=CDBC,            INDEST=CSSL

* CDUL  DFHDCT TYPE=INDIRECT, DUMP MESSAGES                       X
        DESTID=CDUL,            INDEST=CSSL

* CRDI  DFHDCT TYPE=INDIRECT, RDO INSTALL LOG                     X
        DESTID=CRDI,            INDEST=CSSL

* CSRL  DFHDCT TYPE=INDIRECT, Partner Resource Manager            X
        DESTID=CSRL,            INDEST=CSSL

* CMIG  DFHDCT TYPE=INDIRECT, LOG OF MIGRATION ERRORS             X
        DESTID=CMIG,            INDEST=CSSL

* CCSO  DFHDCT TYPE=EXTRA,  C/37Ø output queue                   X
DESTID=CCSO, DSCNAME=COUT

CCSE DFHDCT TYPE=INDIRECT, C/370 error queue X
DESTID=CCSE, X
INDDEST=CCSO

***

ADD NAME=DFH$DCTS
TITLE 'DFH$DCTS - COPYBOOK OF DCT ENTRIES FOR SAMPLE APPLICATIONS'

LOGA DFHDCT TYPE=EXTRA, DESTINATION LOGA-USED BY SAMPLE APPLICATIONS WHICH USE FILEA
DESTID=LOGA, DSCNAME=LOGUSR

L860 DFHDCT TYPE=INTRA, DESTINATION L860-USED BY ORDER ENTRY
DESTFAC=TERMINAL, QUEUE PRINT SAMPLE PROGRAMS
DESTID=L860, X
DESTRCV=NO, X
TRANSID=AORQ, CHANGE IF WANT PORQ OR OREQ
TRIGLEV=30 TRANSID IS AUTO INIT'D WHEN QUEUE=30

L86P DFHDCT TYPE=INTRA, DESTINATION L86P-USED BY 'TRANSIENT X
DESTFAC=TERMINAL, DATA WRITE TO TERMINAL' PGM-DFH$TDWTX
DESTID=L86P, X
DESTRCV=NO, X
TRANSID=TDWT, X
TRIGLEV=1

ADD NAME=DFH$IZRQ

=====================================================================
Queues for samples
=====================================================================

CSZL DFHDCT TYPE=INDIRECT, FEPI message queue
DESTID-CSZL, X
INDDEST=CSSL

CSZX DFHDCT TYPE=INTRA, FEPI event queue
DESTID-CSZX, X
DESTFAC=FILE, X
DESTRCV=NO, X
TRANSID=CZUX, X
TRIGLEV=1

*************
End of DFH$IZRQ
*************

ADD NAME=DFHDCT$SYSID
DCT$SYSID TITLE 'DFHDCT$SYSID - CICS DESTINATION TABLE FOR SAMPLE APPLICATIONS'

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**DFHDCT TYPE=INITIAL, SUFFIX=&SYSID, STARTER=YES ALLOWS $ IN SUFFIX**

**TABLE ENTRIES FOR:-**

COPY DFH$DCTD - ALL SDSCI ENTRIES MUST BE IN HERE
COPY DFH$DCTR - BASIC CICS FACILITIES
COPY DFH$DCTS - SAMPLE APPLICATIONS
COPY DFHØIZRQ - FEPI DESTINATIONS

**DFHDCT TYPE=FINAL END .**

=./ ADD NAME=JCTCICS
TITLE 'DFHJCT&SYSID - JCT ENTRY FOR XRF CICS SYSTEM LOG'

**CICS SYSTEM LOG, JOURNAL Ø1, ON DUAL DISK EXTENT - DFHJØ1A + DFHJØ1B**

**DFHJCT TYPE=ENTRY, JFILEID=SYSTEM, BUFSIZE=6Ø00, JOUROPT=(CRUCIAL,RETRY,AUTOARCH), ARCHJCL=DFH$ARCH, JTYPE=DISK2**

=./ ADD NAME=DFHJCT&SYSID
JCT&SYSID TITLE 'DFHJCT&SYSID - CICS JOURNAL CONT TABLE - SYSTEM LOG'

**THIS TABLE CONTAINS ENTRIES FOR THE CICS SYSTEM LOG**

**DFHJCT TYPE=INITIAL, SUFFIX=&SYSID**

**TABLE ENTRIES FOR:-**

COPY JCTCICS - CICS SYSTEM LOG (Ø2)

**DFHJCT TYPE=FINAL END .**

=./ ADD NAME=DFHMCT&SYSID
DFHMCT TYPE=INITIAL,SUFFIX=&SYSID

**DFHMCT TYPE=EMP,**
CLASS=PERFORM,
ID=(OMEGBSC.1),
FIELD=(1,OMEGBSC),
PERFORM=(MOVE(Ø,132))

**DFHMCT TYPE=EMP,**
CLASS=PERFORM,
ID=(OMEGDB2.1),
FIELD=(1,OMEGDB2),
PERFORM=(MOVE(Ø,100))

**DFHMCT TYPE=RECORD,**
CLASS=PERFORM,
EXCLUDE=(DFHFILE,9,111,130)
DFHMCT TYPE=FINAL
END

./ ADD NAME=DFHPLTPI
DFHPLT TYPE=INITIAL,SUFFIX=&SYSID
* FIRST STAGE PLTPI
DFHPLT TYPE=ENTRY,PROGRAM=DFHDELIM
* SECOND STAGE PLTPI
DFHPLT TYPE=ENTRY,PROGRAM=DSN2COMØ DB2
DFHPLT TYPE=FINAL
END

./ ADD NAME=DFHPLTSD
DFHPLT TYPE=INITIAL,SUFFIX=SD
* FIRST STAGE PLTSD
DFHPLT TYPE=ENTRY,PROGRAM=DSN2COM2
DFHPLT TYPE=ENTRY,PROGRAM=DFHDELIM
* SECOND STAGE PLTSD
DFHPLT TYPE=FINAL
END

./ ADD NAME=DFHSIT&SYSID
SIT      TITLE 'DFHSIT&SYSID CICS DEFAULT SYSTEM INITIALIZATION TABLE'
DFHSIT TYPE=CSECT,
ADI=3Ø,
XRF(B) - Alternate delay interval

AIEXIT=DFHZATDX,  Auto-install user program name  
AILDELAY=Ø,     Delete delay period for AI TCTTEs  
AIOMAX=1Ø0,    Maximum no of terminals queued for AI  
AIRDELAY=7ØØ,  Restart delay period for AI TCTTEs  
AKPFREQ=2ØØ,   Activity keypoint frequency  
APPLID=(A&NODE.CIC&SYSID,A&NODE.CIC&SYSID),  
AUTCONN=Ø,     Autoconnect delay  
AUXTR=OFF,     Auxiliary trace option  
AUXTRSW=NO,    Auxiliary trace autoswitch facility  
BMS=(FULL,COLD,UNALIGN,DDS),   CHANGED  
CICSSVC=216,   The CICS SVC number  
CLSDSTP=NOTIFY, Notification for ISSUE PASS command  
CLT=,     The command list table option/suffix  
CMDPROT=YES, EXEC storage command checking  
CMDSEC=ASIS, API command security checking  
CSDACC=READWRITE, CSD access  
CSDKBUP=STATIC, Backuptype of CSD (STATIC or DYNAMIC)  
CSDBUFND=, Number of data buffers for the CSD  
CSDBUFNI=, Number of index buffers for the CSD  
CSDDISP=SHR, CHANGED  
CSDDSN=&SYS..DFHCSD, CHANGED  
CSDFRLOG=1, CHANGED  
CSDJID=1, CHANGED  
CSDLRSNO=2, The VSAM LSR pool number for the CSD  
CSDRECOV=ALL, CHANGED  
CSDSTRNO=2, CSD Number of strings  
CWAKEY=USER, CWA storage key  
DAE=NO, NODAE for new dump table entry  

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DATFORM=DDMMYY,                CHANGED              X
DBP=1$,                      Required version of DBP with DLI=NO X
DBUFSZ=500,                  Dynamic backout buffer size X
DCT=&SYSID,                      CHANGED               X
DDIR=YES,                     DL/I DMB directory option/suffix  X
DFLTUSER=SCIC&SYSID,             CHANGED                X
DIP=NO,                      Batch data interchange program X
DISMACP=NO,                   Disable macro programs X
DLDBRC=N0,                    DL/I DBRC support - CICS local DL/I X
DLI=NO,                      DL/I option X
DLIOLIM=100,                  Number of errors per DL/I database X
DLIRLM=NO,                    DL/I IRLM option/name X
DLLPA=NO,                     Use IMS/VS modules from LPA option X
DMON=NO,                      DL/I Data Base Monitor option X
DLMON=NO,                     DL/I Data Base Monitor option X
DLTHRED=1,                    DL/I number of threads (CICS-DLI) X
DLXCPVR=NO,                   Page-fix ISAM/OSAM buffers for DL/I X
DMBPL=4,                      DMB pool size in 1024-byte blocks X
DSALIM=4M,                     CHANGED                X
DSHIPIDL=020000,              Delete shipped idle time X
DSHIPINT=120000,              Delete shipped interval X
DTRPGM=DFHDYP,                Dynamic transaction routing program X
DTRTRAN=CRTX,                 Default dynamic tran routing transid X
DUMP=YES,                     Dump option X
DUMPSW=NO,                    Dump data set autoswitch option X
DURETRY=30,                   SDUMP total retry time (in seconds) X
EDSALIM=16M,                  CHANGED               X
ENQPL=2,                      Max.control.blk.space (in 1K blocks) X
EODI=EO,                      End-of-data indicator for seq. devices X
ESMEXITS=INSTLN,              CHANGED               X
FCT=NO,                       CHANGED               X
FEPI=NO,                      CHANGED               X
FLENSEP=' ',                  End-of-field separator characters X
FLDSTRT=' ',                  Field start character for builtin fn X
GMTEXT='WELCOME TO CICS/ESA         INTERPAY',          X
GMTRAN=CESN,                  Signoff transaction X
GRNAME=,                      Generic resource name for CICS TORs X
GRPLIST=CIC&ENV,              CHANGED               X
GTFR=OFF,                     GTF trace option X
HPO=NO,                       VTAM High Performance Option (HPO) X
ICP=COLD,                     Interval control pgm. start option X
ICV=1000,                     Region exit interval (milliseconds) X
ICVR=20000,                   CHANGED               X
ICVTSD=500,                   Terminal scan delay interval (" ") X
INITPARM=,                    SITOVER               X
INTR=ON,                      CICS internal trace option X
IRCTRAN=NO,                   Interregion communication start X
ISC=NO,                       CHANGED               X
JCT=&SYSID,                    CHANGED               X
JESDI=30,                     JES delay interval for XRF alternate X
LGNMSG=NO, Extract VTAM logon data X
LLACOPY=YES, Use MVS LLACOPY support X
LPA=YES, CHANGED X
MCT=&SYSID, CHANGED T.B.V. OMEGAMON CT13Ø X
MN=ON, CHANGED X
MNCONV=NO, Monitoring converse recording option X
MNEVE=ON, Monitoring event class option X
MNEVC=ON, Monitoring exception class option X
MNFREQ=010000, Monitoring frequency period X
MNPON=ON, CHANGED X
MNSUBSYS=, Monitoring subsystem identification X
MNSYNC=NO, Monitoring syncpoint recording option X
MNTIME=GMT, Monitoring timestamp (GMT/LOCAL) X
MROBCH=1, Number of MRO requests to batch X
MRORLM=NO, Long-running mirror task option X
MSGCASE=MIXED, CICS messages in mixed case X
MSGLVL=1, System console MSG level option X
MXT=32, Maximum number of tasks in CICS X
NATLANG=E, List of national languages X
OPERTIM=120, Write to operator timeout (seconds) X
OPNDLIM=10, OPNDST/CLSDST request limit X
PARMERR=INTERACT, System init. parameter errors option X
PLTPI=SYSID, PLT SECURITY CHECKS ON PI PROGRAMS X
PISCHD=YES, Program isolation scheduling option X
PGCHAIN=X/, CHANGED X
PGCOPY=C/, CHANGED X
PGPURGE=T/, CHANGED X
PGRET=P/, CHANGED X
PISCHD=YES, Program isolation scheduling option X
PSBCHK=NO, PSB resource checking required X
PSBPL=4, PSB pool size in 1024-byte blocks X
PSDINT=Ø, Persistent Session Delay Interval X
PVDELAY=30, Timeout value for LU1 Table X
RAMAX=256, Max. I/O area for RECEIVE ANY X
RAPPO=2, Max. RECEIVE ANY Request Parm.Lists X
RENTPGM=NOPROT, CHANGED X
RESP=FME, Logical unit response type X
RESSEC=ASIS, Resource security check X
RMTRAN=CSGM, XRF alternate recovery transaction X
RST=NO, Recovery service table (XRF-DBCTL) X
SEC=YES, External security manager option X
<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
<th>Value</th>
<th>Changed</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUBTSKS=1</td>
<td></td>
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<tr>
<td>SUFFIX=&amp;SYSID</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>SYDUMAX=999</td>
<td>No of SYSDUMPS to be taken</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SYSIDNT=CICS</td>
<td>Local system identifier</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SYSTR=ON</td>
<td>Master system trace flag</td>
<td></td>
<td></td>
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<tr>
<td>TAKEOVR=MANUAL</td>
<td>XRF alternate takeover option</td>
<td></td>
<td></td>
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<tr>
<td>TBEXITS=</td>
<td>Transaction backout exit programs</td>
<td></td>
<td></td>
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<tr>
<td>TCAM=NO</td>
<td>TCAM option</td>
<td></td>
<td></td>
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<tr>
<td>TCP=YES</td>
<td>Terminal control program option/suffix</td>
<td></td>
<td></td>
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<tr>
<td>TCSACTN=UNBIND</td>
<td></td>
<td></td>
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<tr>
<td>TCSWAIT=2</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>TCT=NO</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>TCTUAKEY=USER</td>
<td>TCT user area storage key</td>
<td></td>
<td></td>
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<tr>
<td>TCTUALOC=BETWEEN</td>
<td>TCT user area below 16MB</td>
<td></td>
<td></td>
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<tr>
<td>TD=(3,3)</td>
<td>Transient data buffers and strings</td>
<td></td>
<td></td>
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<tr>
<td>TRAP=OFF</td>
<td>F.E. global trap exit option</td>
<td></td>
<td></td>
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<tr>
<td>TRANISO=NO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TRDUMAX=999</td>
<td>No of TRANDUMPS to be taken</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TRTABSZ=1024</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>TRTRANSZ=40</td>
<td>Transaction Dump Trace size</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TRTRANTY=TRAN</td>
<td>Transaction Dump Trace type</td>
<td></td>
<td></td>
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<tr>
<td>TS=(3,3)</td>
<td>Temporary storage buffers and strings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TSMGSET=4</td>
<td># of entries for pointers to TS MSGset</td>
<td></td>
<td></td>
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<tr>
<td>TST=NO</td>
<td>TEMPORARY STORAGE TABLE OPTION/SUFFIX</td>
<td></td>
<td></td>
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<tr>
<td>USERTR=ON</td>
<td>Master user trace flag</td>
<td></td>
<td></td>
</tr>
<tr>
<td>USRDELAY=30</td>
<td>Timeout value for User Dir. Entries</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VTAM=NO</td>
<td>VTAM access method option</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WRKAREA=2048</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>XAPPC=NO</td>
<td>RACF class APPLCLU required</td>
<td></td>
<td></td>
</tr>
<tr>
<td>XCMD=NO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>XDCT=NO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>XFCT=NO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>XJCT=NO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>XLT=NO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>XPCT=NO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>XPPT=NO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>XPSB=NO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>XRF=NO</td>
<td>Extended recovery feature (XRF) option</td>
<td></td>
<td></td>
</tr>
<tr>
<td>XRFSOFF=NOFORCE</td>
<td>XRF - Re-sign on after takeover</td>
<td></td>
<td></td>
</tr>
<tr>
<td>XRFSTME=5</td>
<td>XRF - sign off timeout value</td>
<td></td>
<td></td>
</tr>
<tr>
<td>XTRAN=NO</td>
<td>Transid use default name, RACF check</td>
<td></td>
<td></td>
</tr>
<tr>
<td>XTST=NO</td>
<td>TST use default name for RACF check</td>
<td></td>
<td></td>
</tr>
<tr>
<td>XUSER=YES</td>
<td>Surrogate user checking to be done</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

END DFHSITBA

Editor’s note: this article will be continued next month.

Paul Jansen  
System Programmer  
Interpay (The Netherlands) © P Jansen 1999
PL/I OPTIONS(REENTRANT) on called procedures

We often use separately compiled PL/I procedures in CICS PL/I programs. The object modules containing the procedures bind to the CICS program at link time. These procedures perform transformation operations on passed parameters. They do not require CICS services and can also be called from batch programs.

Until recently, using CICS 3.3 without Language Environment, we had no problems with these programs. However, as we moved to CICS 4.1 and Language Environment, we began to experience the problems shown in Figure 1.

The program was linked RENT, REUS, AMODE(31), RMODE(ANY) and so it was loaded by CICS in ERDSA.

The following report is the object listing of TSTPRGB without OPTIONS(REENTRANT):

* STATEMENT NUMBER 9  CALL HVPC2X(PARM1,PARM1X,BINARY(16,31));
000090  58 E0 3 064  L  14,100(0,3)  
000094  50 E0 D 128  ST  14,296(0,13)  
000098  41 A0 9 000  LA  10,PARM1  
00009C  50 A0 3 074  ST  10,116(0,3)  
0000A0  41 40 D 0C8  LA  4,PARM1X  
0000A4  50 40 3 078  ST  4,120(0,3)

The abend was produced when TSTPRGB was filling in the parameter list for the calling Assembler program. The parameter list was pointed to by register 3, which contains the address of the static DSECT – so it was obvious that the program would abend here. After recompiling TSTPRGB with OPTIONS(REENTRANT) the problem disappeared. The object listing shows that the parameter list is now moved to working storage and everything works as well as before.

The following report is the object listing of TSTPRGB with OPTIONS(REENTRANT):

* STATEMENT NUMBER 9
000090  D2 08 D 128 3 074  MVC  296(12,13),116(3)  
000096  58 80 3 064  L  8,100(0,3)  
00009A  50 80 D 134  ST  8,308(0,13)  
00009E  41 A0 9 000  LA  10,PARM1  

DFHAC2206 13:52:12 A06SYTM Transaction TEST has failed with abend ASRA. Resource backout was successful.

DFHSR0622 A06SYTM An attempt to overwrite the ERDSA has caused the abend which follows:

DFHSR0001 A06SYTM An abend (code 0C4/AKEA) has occurred at offset X'00000EB8' in program TSTPRGA.

IBM0534S ONCODE=8094 Protection exception.

From compile unit TSTPRGB at entry point TSTPRGB at compile unit offset +0000009C at address 05A78EB4.

PSW..... 079D0E00 05A78EB8
storage at location: 05A78EA4
05A78EA4 90003090 58E03064 50E0D128 41A09000 50A03074 4140D0C8 50403078 41F0D128

offending instruction ———>     ————>    ST 10,116(0,3)

Analysis:
structure of TEST:
trans TEST
prog TSTPRGA
PROC(DFHEIPTR) returns(BIN FIXED(31));
OPTIONS (MAIN REENTRANT);
rc=TSTPRGB(parml);
call assembler_program(parms);

Figure 1: Problems encountered with CICS 4.1
CONCLUSION

Obviously I should have compiled with the right options from the beginning, but better late than never. I hope that others may benefit from my experience!

Herman Vierendeels
Systems Programmer (Belgium) © Xephon 1999

Further CICS V3.3 shutdown statistics – part 2

This month we continue the programs to accumulate statistics for DTB, dumps, ISC/IRC, Task Class, VTAM, and Transient Data Queues.

ISC/IRC STATISTICS PROGRAM

TITLE ' STATISCS - ISC/IRC STATISTICS COLLECTION PROGRAM'

DFHEISTG DSECT

* 

RESP DS F
CVRTAREA DS D
ZAPTAREA DS PL3
R2 EQU 2
R3 EQU 3
R4 EQU 4
R5 EQU 5
R6 EQU 6
R7 EQU 7
R8 EQU 8
R9 EQU 9
R10 EQU 10
R11 EQU 11

* 

COMMFLDS DSECT

APPLID DS CL8
SYSID DS CL4
JOBNAME DS CL8
DATE DS CL8
TIME     DS    CL8
STOKEN   DS    CL8
*       ** ISC AND MODENAME DSECTS **
COPY DFHA14DS
COPY DFHA20DS
*
STATISCS DFHEIENT CODEREG=(3),DATAREG=(13),EIBREG=11
*
L    R2,DFHEICAP
    USING COMMFLDS,R2
*
BAL   R4,HDNG       PAGE HEADINGS
BAL   R4,FRSTHEAD   ISC STATISTICS HEADINGS
BAL   R7,ISCDS      ISC STATISTICS DETAIL
BAL   R4,ISCHEAD2   ISC STATISTICS HEADINGS (#2)
BAL   R7,ISCDS2     ISC STATISTICS DETAIL (#2)
B    EXIT
*
HDNG   EQU   *
MVC   HJOBNM(8),JOBNAME
MVC   HAPPLID(8),APPLID
MVC   HSYSID(4),SYSID
MVC   HDATE(8),DATE
MVC   HTIME(8),TIME
MVC   PRINTLN(133),HEADING
BAL   R1Ø,Writespl
MVC   PRINTLN(133),UNDRSCOR
BAL   R1Ø,Writespl
MVC   PRINTLN(133),BLANKS
BAL   R1Ø,Writespl
ZAP   LNECNT,=P'3'
BR    R4
*
******>>>>>> **** START PROCESS ISC STATISTICS ****** <<<<<<<<********
FRSTHEAD EQU   *
MVC   PRINTLN(133),ISCHDT
BAL   R1Ø,Writespl
MVC   PRINTLN(133),BLANKS
BAL   R1Ø,Writespl
AP    LNECNT,=P'2'
*
ISCHEAD MVC   PRINTLN(133),ISCHD1
BAL   R1Ø,Writespl
MVC   PRINTLN(133),ISCHD2
BAL   R1Ø,Writespl
MVC   PRINTLN(133),ISCHD3
BAL   R1Ø,Writespl
MVC   PRINTLN(133),UNDRSCOR
BAL   R1Ø,Writespl
AP    LNECNT,=P'4'
BR R4

* ISCDSEXU * GET ISC INFO
USING DFHA14DS,R9
EXEC CICS INQUIRE CONNECTION START
EXEC CICS INQUIRE CONNECTION (CONNID) NEXT RESP (RESP)
CLC RESP,DFHRESP(END)
BE NOCONNS
CLC CONNID(4),BATCH IF BATCH CONNECTION (@BCH)
BE NXTCONN IGNORE.
MVC ISCLNE1(133),BLANKS
MVC ISCID(8),BLANKS
MVC ISCID(4),CONNID
MVC SAVECONN(4),CONNID
BAL R8,ISCSTAT

* NXTCONN EQU *
USING DFHA14DS,R9
EXEC CICS INQUIRE CONNECTION (CONNID) NEXT RESP (RESP)
CLC RESP,DFHRESP(END)
BE ISCEND
CLC CONNID(4),BATCH IF BATCH CONNECTION (@BCH)
BE NXTCONN IGNORE.
MVC ISCLNE1(133),BLANKS
MVC SAVECONN(4),CONNID
MVC ISCID(8),BLANKS
MVC ISCID(4),CONNID
BAL R8,ISCSTAT
B NXTCONN

* ISCSTAT EQU * COLLECT STATISTICS AND PROCESS
EXEC CICS COLLECT STATISTICS CONNECTION (CONNID) SET (R9)

* AIDSI N CHAIN
LH R6,A14EALL
CVD R6,CVRTAREA
ZAP ZAPTAREA(3),CVRTAREA+5(3)
OI ZAPTAREA+2,X'ØF'
MVC AIC(6),PTRN
ED AIC(6),ZAPTAREA

* GENERIC AIDSI N CHAIN (NON-SPECIFIC AIDS)
LH R6,A14ESALL
CVD R6,CVRTAREA
ZAP ZAPTAREA(3),CVRTAREA+5(3)
OI ZAPTAREA+2,X'ØF'
MVC NSA(6),PTRN
ED NSA(6),ZAPTAREA

* CURRENT BIDS
LH R6,A14EBID
CVD  R6,CVRTAREA
ZAP  ZAPTAREA(3),CVRTAREA+5(3)
OI  ZAPTAREA+2,X'ØF'
MVC  CBIDS(6),PTRN
ED  CBIDS(6),ZAPTAREA

* MAX OUTSTANDING ALLOCATES
   LH  R6,A14ESTAM
   CVD R6,CVRTAREA
   ZAP ZAPTAREA(3),CVRTAREA+5(3)
   OI  ZAPTAREA+2,X'ØF'
   MVC  MAXO(6),PTRN
   ED  MAXO(6),ZAPTAREA

* MAX SECONDARIES
   LH  R6,A14E2HWM
   CVD R6,CVRTAREA
   ZAP ZAPTAREA(3),CVRTAREA+5(3)
   OI  ZAPTAREA+2,X'ØF'
   MVC  MAXS(6),PTRN
   ED  MAXS(6),ZAPTAREA

* MAX BIDS
   LH  R6,A14EBHWM
   CVD R6,CVRTAREA
   ZAP ZAPTAREA(3),CVRTAREA+5(3)
   OI  ZAPTAREA+2,X'ØF'
   MVC  MAXB(6),PTRN
   ED  MAXB(6),ZAPTAREA

* ATIS SATISFIED BY PRIMARIES
   L   R6,A14ES1
   CVD R6,CVRTAREA
   ZAP ZAPTAREA(3),CVRTAREA+5(3)
   OI  ZAPTAREA+2,X'ØF'
   MVC  ATIP(6),PTRN
   ED  ATIP(6),ZAPTAREA

* ATIS SATISFIED BY SECONDARIES
   L   R6,A14ES2
   CVD R6,CVRTAREA
   ZAP ZAPTAREA(3),CVRTAREA+5(3)
   OI  ZAPTAREA+2,X'ØF'
   MVC  ATIS(6),PTRN
   ED  ATIS(6),ZAPTAREA

* BIDS SENT
   L   R6,A14ESBID
   CVD R6,CVRTAREA
   ZAP ZAPTAREA(3),CVRTAREA+5(3)
   OI  ZAPTAREA+2,X'ØF'
MVC   BIDSSNT(6),PTRN
ED   BIDSSNT(6),ZAPTAREA
*
MVC   PRINTLN(133),BLANKS
MVC   PRINTLN(133),ISCLNE1
AP   LNECNT,=P'1'
BAL   R1Ø,WRITESPL
*
AP   LNECNT,=P'1'
CP   LNECNT,MAXLNE  END OF PAGE?
BL   MODDS
BAL   R4,HDNG  PAGE HEADING
BAL   R4,ISCHEAD  ISC HEADINGS
*
*
MODDS   EQU   *  GET ISC INFO
USING DFHAA2ØDS,R9
EXEC CICS INQUIRE MODENAME START
EXEC CICS INQUIRE MODENAME (MODEID) CONNECTION (CONNID)  X
NEXT RESP (RESP)
CLC   RESP,DFHRESP(END)
BE   MODEEND
CLC   CONNID(4),BATCH  IF BATCH CONNECTION (@BCH)
BE   NXTMODE  IGNORE.
BAL   R5,MODESTAT
*
NXTMODE   EQU   *  
EXEC CICS INQUIRE MODENAME (MODEID) CONNECTION (CONNID)  X
NEXT RESP (RESP)
CLC   RESP,DFHRESP(END)
BE   MODEEND
CLC   CONNID(4),BATCH  IF BATCH CONNECTION (@BCH)
BE   NXTMODE  IGNORE.
CLC   CONNID(4),SAVECONN
BNE   MODEEND
BAL   R5,MODESTAT
B   NXTMODE
*
MODESTAT   EQU   *  COLLECT STATISTICS AND PROCESS
MVC   ISCLNE1(133),BLANKS
MVC   PRINTLN(133),BLANKS
MVC   ISCID(8),MODEID
*
*  MAX SECONDARIES
LH   R6,A2ØE2HWM
CVD   R6,CVRTAREA
ZAP   ZAPTAREA(3),CVRTAREA+5(3)
OI   ZAPTAREA+2,X'ØF'
MVC   MAXS(6),PTRN
ED   MAXS(6),ZAPTAREA
*
* MAX BIDS
  LH R6,A2ØEBHWM
  CVD R6,CVRTAREA
  ZAP ZAPTAREA(3),CVRTAREA+5(3)
  OI ZAPTAREA+2,X'ØF'
  MVC MAXB(6),PTRN
  ED MAXB(6),ZAPTAREA
*
* ATIS SATISFIED BY PRIMARIES
  L R6,A2ØES1
  CVD R6,CVRTAREA
  ZAP ZAPTAREA(3),CVRTAREA+5(3)
  OI ZAPTAREA+2,X'ØF'
  MVC ATIP(6),PTRN
  ED ATIP(6),ZAPTAREA
*
* ATIS SATISFIED BY SECONDARIES
  L R6,A2ØES2
  CVD R6,CVRTAREA
  ZAP ZAPTAREA(3),CVRTAREA+5(3)
  OI ZAPTAREA+2,X'ØF'
  MVC ATIS(6),PTRN
  ED ATIS(6),ZAPTAREA
*
* BIDS SENT
  L R6,A2ØESBID
  CVD R6,CVRTAREA
  ZAP ZAPTAREA(3),CVRTAREA+5(3)
  OI ZAPTAREA+2,X'ØF'
  MVC BIDSSNT(6),PTRN
  ED BIDSSNT(6),ZAPTAREA
*
  MVC PRINTLN(133),BLANKS
  MVC PRINTLN(133),ISCLNE1
*
  BAL R10,Writespl
*
  AP LNECNT,=P'1'
  CP LNECNT,MAXLNE END OF PAGE?
  BL MODEBACK
  BAL R4,HDNG PAGE HEADING
  BAL R4,ISCHEAD ISC HEADINGS
*
* MODEBACK BR R5
*
* MODEEND EQU *
EXEC CICS INQUIRE MODENAME END
BR R8
*
* NOCONNS EQU *

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MVC  ISCLNE1(133),BLANKS  PUT OUT MESSAGE IF
MVC  NOCONN+13(8),JOBNAME  REGION HAS NO
MVC  ISCLNE1+35(38),NOCONN  CONNECTIONS TO
MVC  PRINTLN(133),ISCLNE1  OTHER REGIONS
BAL  R10,WRITESPL
ISCEND  EQU  *
EXEC  CICS INQUIRE CONNECTION END
BR  R7

*  ISCHEAD2  EQU  *
  MVC  PRINTLN(133),BLANKS
  MVI  PRINTLN,C'1'
  BAL  R10,WRITESPL
*  MVC  PRINTLN(133),BLANKS
*  BAL  R10,WRITESPL
*  AP  LNECNT,=P'2'
*
ISCHEADX  EQU  *
  MVC  PRINTLN(133),ISCHD4
  BAL  R10,WRITESPL
  MVC  PRINTLN(133),ISCHD5
  BAL  R10,WRITESPL
  MVC  PRINTLN(133),ISCHD6
  BAL  R10,WRITESPL
  MVC  PRINTLN(133),UNDRSCOR
  BAL  R10,WRITESPL
  AP  LNECNT,=P'4'
  BR  R4
*
ISCDS2  EQU  *  GET ISC INFO
*
  USING  DFHA14DS,R9
  EXEC  CICS INQUIRE CONNECTION START
  EXEC  CICS INQUIRE CONNECTION (CONNID) NEXT RESP (RESP)
  CLC  RESP,DFHRESP(END)
  BE  NOCONNS
  CLC  CONNID(4),BATCH  IF BATCH CONNECTION (@BCH)
  BE  NXTCONN2  IGNORE.
  MVC  ISCLNE2(133),BLANKS
  MVC  ISCID2(8),BLANKS
  MVC  ISCID2(4),CONNID
  MVC  SAVECONN(4),CONNID
  BAL  R8,ISCSTAT2
*
NXTCONN2  EQU  *
  USING  DFHA14DS,R9
  EXEC  CICS INQUIRE CONNECTION (CONNID) NEXT RESP(_RESP)
  CLC  RESP,DFHRESP(END)
  BE  ISCEND
CLC CONNID(4),BATCH IF BATCH CONNECTION (@BCH)
BE NXTCONN2 IGNORE.
MVC ISCLNE2(133),BLANKS
MVC SAVECONN(4),CONNID
MVC ISCID2(8),BLANKS
MVC ISCID2(4),CONNID
BAL R8,ISCSTAT2
B NXTCONN2

* ISSTAT2 EQU * COLLECT STATISTICS AND PROCESS EXEC CICS COLLECT STATISTICS CONNECTION (CONNID) SET (R9)
* ALLOCATES: TOTAL
L R6,A14ESTAS
CVD R6,CVRTAREA
ZAP ZAPTAREA(3),CVRTAREA+5(3)
OI ZAPTAREA+2,X'OF'
MVC ALLOCTO(6),PTRN
ED ALLOCTO(6),ZAPTAREA

* ALLOCATES: QUEUED
L R6,A14ESTAQ
CVD R6,CVRTAREA
ZAP ZAPTAREA(3),CVRTAREA+5(3)
OI ZAPTAREA+2,X'OF'
MVC ALLOCQ(6),PTRN
ED ALLOCQ(6),ZAPTAREA

* ALLOCATES: FAILED LINK
L R6,A14ESTAF
CVD R6,CVRTAREA
ZAP ZAPTAREA(3),CVRTAREA+5(3)
OI ZAPTAREA+2,X'OF'
MVC ALLOCF(6),PTRN
ED ALLOCF(6),ZAPTAREA

* ALLOCATES: FAILED OTHER
L R6,A14ESTAO
CVD R6,CVRTAREA
ZAP ZAPTAREA(3),CVRTAREA+5(3)
OI ZAPTAREA+2,X'OF'
MVC ALLOCF0(6),PTRN
ED ALLOCF0(6),ZAPTAREA

* REQUESTS: FILE
L R6,A14ESTFC
CVD R6,CVRTAREA
ZAP ZAPTAREA(3),CVRTAREA+5(3)
OI ZAPTAREA+2,X'OF'
MVC RQSTF(6),PTRN
ED RQSTF(6),ZAPTAREA

*
* REQUESTS: INTERVAL
  L   R6,A14ESTIC
  CVD R6,CVRTAREA
  ZAP ZAPTAREA(3),CVRTAREA+5(3)
  OI  ZAPTAREA+2,X'OF'
  MVC RQSTI(6),PTRN
  ED  RQSTI(6),ZAPTAREA
*
* REQUESTS: TRANSIENT DATA
  L   R6,A14ESTTD
  CVD R6,CVRTAREA
  ZAP ZAPTAREA(3),CVRTAREA+5(3)
  OI  ZAPTAREA+2,X'OF'
  MVC RQSTTD(6),PTRN
  ED  RQSTTD(6),ZAPTAREA
*
* REQUESTS: TEMPORARY STORAGE
  L   R6,A14ESTTS
  CVD R6,CVRTAREA
  ZAP ZAPTAREA(3),CVRTAREA+5(3)
  OI  ZAPTAREA+2,X'OF'
  MVC RQSTTS(6),PTRN
  ED  RQSTTS(6),ZAPTAREA
*
* REQUESTS: DL/I
  L   R6,A14ESTDL
  CVD R6,CVRTAREA
  ZAP ZAPTAREA(3),CVRTAREA+5(3)
  OI  ZAPTAREA+2,X'OF'
  MVC RQSTDLI(6),PTRN
  ED  RQSTDLI(6),ZAPTAREA
*
  MVC PRINTLN(133),BLANKS
  MVC PRINTLN(133),ISCLNE2
  AP  LNECNT,=P'1'
  BAL R10,WRITESPL
*
  AP  LNECNT,=P'1'
  CP  LNECNT,MAXLNE       END OF PAGE?
  BL  MODDS2
  BAL R4,HDNG              PAGE HEADING
  BAL R4,ISCHEADX          ISC HEADINGS
*
* MODDS2  EQU  *              GET ISC INFO
  USING DFHA20DS,R9
  EXEC CICS INQUIRE MODENAME START
  EXEC CICS INQUIRE MODENAME (MODEID) CONNECTION (CONNID)  X
  NEXT RESP (RESP)
  CLC  RESP,DFHRESP(END)
BE   MODEEND
BAL   R5,MODESTA2

*  
NXTMODE2 EQU *
EXEC  CICS INQUIRE MODENAME (MODEID) CONNECTION (CONNID)   X
NEXT  RESP (RESP)
CLC   RESP,DFHRESP(END)
BE   MODEEND
CLC   CONNID(4),SAVECONN
BNE   MODEEND
BAL   R5,MODESTA2
B   NXTMODE2

*  
MODESTA2 EQU *
COLLECT STATISTICS AND PROCESS
MVC   ISCLNE2(133),BLANKS
MVC   PRINTLN(133),BLANKS
MVC   ISCID2(8),MODEID

*  
*   ALLOCATES: TOTAL
L   R6,A2ØESTAS
CVD   R6,CVRTAREA
ZAP   ZAPTAREA(3),CVRTAREA+5(3)
OI    ZAPTAREA+2,X'ØF'
MVC   ALLOCTO(6),PTRN
ED    ALLOCTO(6),ZAPTAREA

*  
*   ALLOCATES: QUEUED
L   R6,A2ØESTAQ
CVD   R6,CVRTAREA
ZAP   ZAPTAREA(3),CVRTAREA+5(3)
OI    ZAPTAREA+2,X'ØF'
MVC   ALLOCO(6),PTRN
ED    ALLOCO(6),ZAPTAREA

*  
*   ALLOCATES: FAILED LINK
L   R6,A2ØESTAF
CVD   R6,CVRTAREA
ZAP   ZAPTAREA(3),CVRTAREA+5(3)
OI    ZAPTAREA+2,X'ØF'
MVC   ALLOCFO(6),PTRN
ED    ALLOCFO(6),ZAPTAREA

*  
*   ALLOCATES: FAILED OTHER
L   R6,A2ØESTAO
CVD   R6,CVRTAREA
ZAP   ZAPTAREA(3),CVRTAREA+5(3)
OI    ZAPTAREA+2,X'ØF'
MVC   ALLOCFO(6),PTRN
ED    ALLOCFO(6),ZAPTAREA

*  

44  © 1999. Xephon UK telephone 01635 33848, fax 01635 38345. USA telephone (940) 455 7050, fax (940) 455 2492.
** END PROCESS ISC STATISTICS  **

** WRITE THE SPOOL RECORD  **

EXEC CICS SPOOLWRITE TOKEN(STOKEN) FROM(PRINTLN) FLENGTH(LINELEN) NOHANDLE

** RETURN  **

EXEC CICS RETURN

** BLANK LINE  **

** UNDERSCORE LINE  **

** HEADING LINE DEFINITION  **
** **

* *************** START ISC STATISTICS DEFINITIONS *************** **

    ** ISC HEADING LINES **

ISCHDT DS ØCL133
ISHCNTLA DC CL1'0'
DC CL132'*** ISC/IRC STATISTICS ***'
ISCHD1 DS ØCL133
SCHCNTL1 DC CL1'0'
DC CL132'SYST/MODE AIDS NON CURRENT MAX MX
AX MAX ATIS-SATISFIED BIDS'
ISCHD2 DS ØCL133
SCHCNTL2 DC CL1'0'
DC CL132' ID IN SPECIFIC BIDS OUTSTNG SECX
N- BIDS .....BY..... SENT'
ISCHD3 DS ØCL133
SCHCNTL3 DC CL1'0'
DC CL132' CHAIN AIDS ALLOCS -DRX
IES PRIMRIES 2NDRIES'

* ISCHD4 DS ØCL133
SCHCNTL4 DC CL1'0'
DC CL132'SYST/MODE **—NUMBER OF ALLOCATES—** **—
—NUMBER OF REQUESTS——**'

ISCHD5 DS ØCL133
SCHCNTL5 DC CL1'0'
DC CL132' ID TOTAL QUEUED FAILED FAILED FIX
LE INTERVAL TRANS TEMP DL/I '

ISCHD6 DS ØCL133
SCHCNTL7 DC CL1'0'
DC CL132'

* DATA STORAGE'

* ** ISC DETAIL LINE #1 **

ISCLNE1 DS ØCL133
ISDCNTL DC CL1'0'
ISCID DS CL4
DC CL4'
AIC DS CL6
DC CL4'
NSA DS CL6
DC CL4'
Editor’s note: this article will be continued next month.

Jim Smith
System Programmer
Onondaga County Data Processing (USA) © Xephon 1999
Compuware and Lincoln Software have announced support for CICS Transaction Server 1.3.

Compuware’s support applies to its QAHyperstation, CICS Abend-AID/FX, and XPEDITER/CICS testing products.

Lincoln’s Engineer for CICS now utilizes the TS 1.3 interfaces to Web-enable existing Lincoln systems without large-scale rewrites. Through the screen builder, Engineer generates a working application, including all of the HTML, Java applets, and COBOL code that interfaces into CICS. It now supports five CICS interfaces, covering two- or three-tier designs with a choice of Java and HTML for the browser.

For further information contact:
Compuware, 31440 Northwestern Highway, PO Box 9080, Farmington Hills, MI 48334-2564, USA.
Tel: (800) 737 7300.
Compuware,163 Bath Road, Slough, Berks, SL1 4AA, UK.
Tel: (01753) 774000.

Lincoln Software Ltd, Marlborough Court, Pickford Street, Macclesfield, Cheshire, SK11 6JD, UK.
Tel: (01625) 616722.

* * *

CICS users can benefit from Technologic Software’s RT-Validate, an MVS and OS/390 stand-alone tool that examines application program code as it’s executing in real time, then corrects, verifies compliance, and generates audit reports. It can be run as a batch or (on-line) CICS program.

Rather than searching for date variables based on programmer-defined pattern matching methods, the software traces every instruction and mathematical operation actually executing in the mainframe code when a date moves from 1999 to 2000 and beyond.

For further information contact:
Technologic Software Concepts, 4199 Campus Drive, Irvine, CA 92612, USA.
Tel: (949) 509 5000.
Technologic Software Concepts (UK), Airport House, Purley Way, Croydon, Surrey, CR0 0XZ, UK.
Tel: (0181) 2883500.

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