C32

CICS TS and the MVS Logger Overcoming Common Problems

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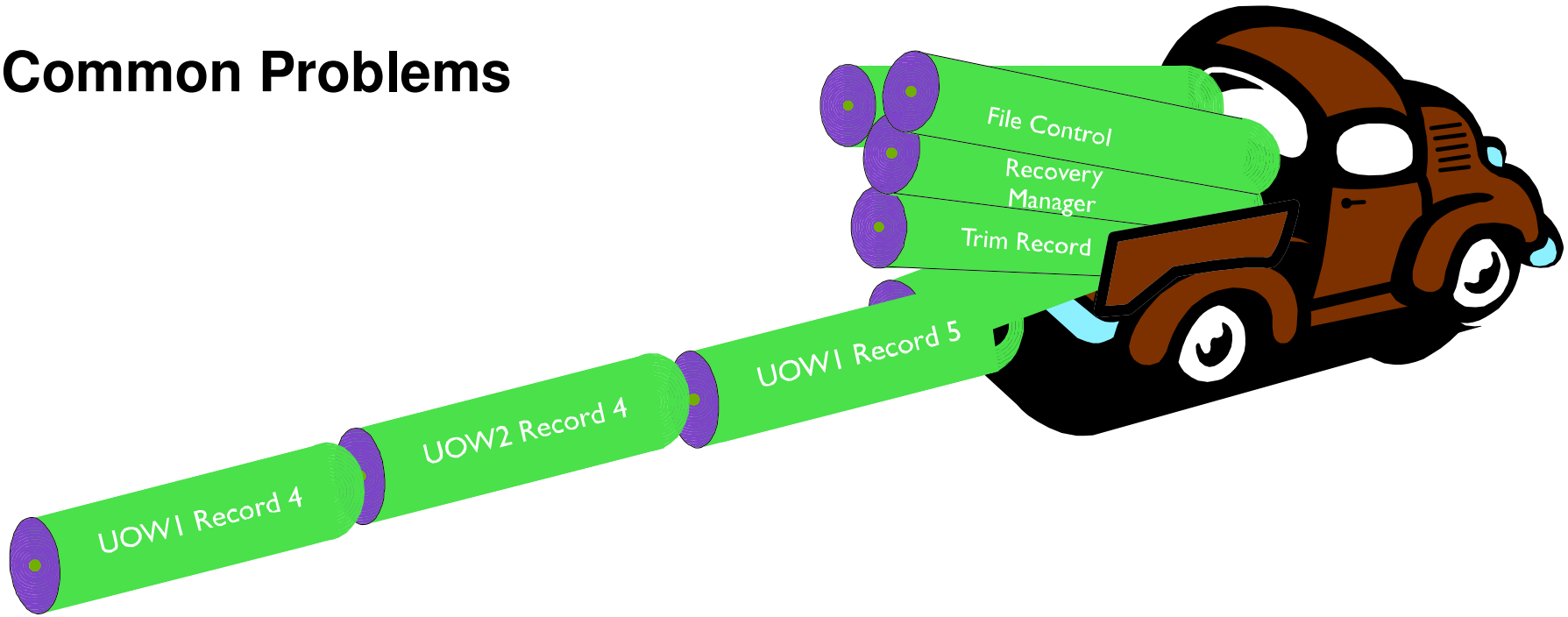
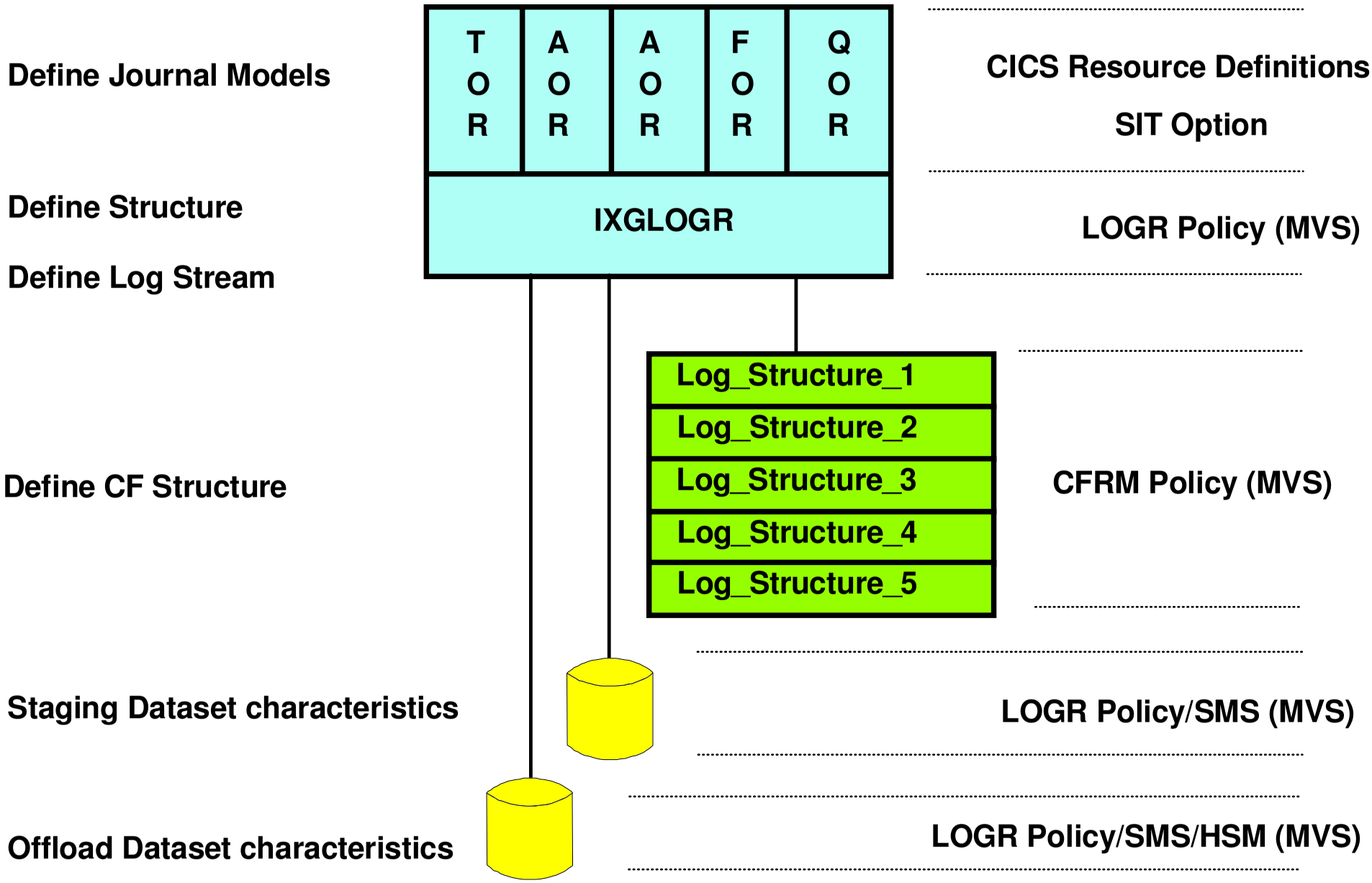
Agenda

- **Making the pieces fit**
- **Dataset names**
- **Common Problems**



Pieces and Parts



Models to Models

- **MVS Log stream definitions**
  - define each log stream explicitly to the logger
  - define a number of log stream model definitions
  - use XLGSTRM global user exit to modify the default log stream specification
    - refer to the CICS Customization Guide
- **Default MVS log stream model definitions required for CICS logs**
  - &SYSNAME..DFHLOG.MODEL
  - &SYSNAME..DFHSHUNT.MODEL
    - &SYSNAME specified in IEASYSxx Parmlib member
- **CICS JOURNALMODEL**
  - auto-installed on first use
  - maps CICS system logs or journals to MVS log streams
  - cannot be used for VSAM RLS forward recovery logs
    - the fully-qualified log stream name is obtained from the VSAM catalog
- **Journal names table**
  - replaces the JCT
  - CICS creates dynamically
  - Contains
    - CICS log to log stream name
    - for user journals -log stream token returned by MVS at connect time

CICS Journal Model Definition

```
//DFHCSDUP JOB CLASS=A,MSGCLASS=A
//UPGRCSD   EXEC  PGM=DFHCSDUP
//STEPLIB   DD DSN=CICSTS12.CICS.SDFHLOAD,DISP=SHR
//SYSPRINT DD SYSOUT=*
//SYSIN DD *
 DEFINE JOURNALMODEL(CICSLOG)                    The name of the model is CICSLOG
        GROUP(TEST)                               The CICS group name is TEST
        DESCRIPTION('DFHLOG LOGSTREAM USING A TEMPLATE DEFINITION')
       JOURNALNAME(DFHLOG)
       TYPE(MVS)                                  Records to be written to the MVS log stream
                                                  specified.
       STREAMNAME(&USERID..&APPLID..DFHLOG ) The  CICS logger  issues an IXGCONN to
                                                  connect to the streamname derived from the
                                                  template or the name explicitly specified.

 DEFINE JOURNALMODEL(SYSSHUNT)
          TYPE(MVS)  GROUP(TEST) JOURNALNAME(DFHSHUNT)
          DESCRIPTION('DFHSHUNT LOGSTREAM EXPLICIT DEFINITION')
          STREAMNAME(TCOM.IYCLZCCA.DFHSHUNT)
```

** NOTE ** If JOURNALMODELs are not defined, CICS will attempt to connect to a log stream named &USERID..&APPLID..DFHLOG . If the log stream has not been defined to the logger, an error is returned. CICS then issues an IXGINVNT DEFINE for the log stream using characteristics from the MVS model *&SYSNAME..DFHLOG.MODEL* (which must be defined in the LOGR policy).

Journal Model notes ...

CICS journal models are defined using either DFHCSDUP in batch, or CEDA, online.

JOURNALMODEL defines the name associated with this definition.
GROUP is a standard Resource Definition group name.
DESCRIPTION - words that describe the resource.
JOURNALNAME - for the system logs, DFHLOG and DFHSHUNT
- for user journals a meaningful name should be chosen (i.e. DFHJ15)
TYPE ----- MVS - records are to be written to the MVS log stream specified in STREAMNAME.
- ----SMF - records are to be written in SMF format to the MVS SMF log.
NOTE--- SMF may not be used with CICS SYSTEM logs (DFHLOG and DFHSHUNT)
STREAMNAME - contains either an explicit log stream name or a template used to build a log stream name.
- in either case, the name which must be defined in the LOGR policy before a connection will complete the logstream name may be defined using the IXCMIAPU utility, or by CICS issuing an IXGINVNT DEFINE during an initial start.
- for a Coupling Facility logstream, it must be associated with a valid structure which is defined in the LOGR policy and in the CFRM policy. Definitions are made using the IXCMIAPU utility.

Journal Model notes ....

During a CICS INITIAL start, the CICS logger component will search the CICS JOURNALMODELs for the DFHLOG and DFHSHUNT entries. The STREAMNAME parm in the JOURNALMODEL provides a connection to the MVS log stream name (LSN).

The JOURNALMODEL may contain an explicit LSN (i.e. JIMG.JIMSAOR.DFHLOG) or a TEMPLATE value (i.e. &applid..DFHLOG), in which case the symbolic qualifiers are used to build the actual log stream name.
Valid symbolic qualifiers are:

&USERID The symbolic name for the CICS region userid, which can be up to eight characters. If the region does not have a userid, the string 'CICS' will be used.

&APPLID The symbolic name for the CICS region APPLID as specified on the system initialization parameter, which can be up to eight characters.

&JNAME. The symbolic name for a journal name that references, either by a specific or generic match, this journal model definition. &JNAME. can be up to eight characters in length.

&SYSID. The symbolic name for the CICS region SYSID as specified on the SYSIDNT system initialization parameter. If SYSIDNT is not specified, the string 'CICS' will be used.

If JOURNALMODELs have not been defined, *&USERID..&APPLID..DFHLOG (or DFHSHUNT)* will be used as the LSN. In the case where CICS has been started as a system started task, the name will be STC..&APPLID..DFHLOG.

Once the log stream name is defined, CICS will issue an IXGCONN to connect to the logstream. If the log stream has not been defined in MVS, i.e. the log stream is not found in the LOGR policy, the MVS logger will return IXGRSNCODENOSTREAM (RC 8 reason code 080B). Upon receiving an 080B, CICS will attempt to create the log stream via an IXGINVNT request DEFINE. The logstream name will be the same as used for the failed connection request but using the MVS model *sysname.DFHLOG.MODEL*.

For a non-system log , the MVS model name used will consist of the first two qualifiers of logstream name with MODEL appended (i.e. if the LSN is JIM.JON.HARRY - the model name will be JIM.JON.MODEL) The MVS models must exist in the LOGR policy (i.e. a DEFINE LOGSTREAM has been issued using IXCMIAPU).

If the create request fails, CICS will abend, with a message in the range of DFHLG0503 through 0511 being issued.

In cases of failure, be sure to have an IXCMIAPU listing of the LOGR and CFRM policies and the message logs available prior to contacting IBM service.

Define Logstream -Coupling Facility

- **Associate log stream names, structure names and attributes.**
  - Structures may be defined or deleted
  - Streams may be defined, deleted or updated

```
//DEFSTR JOB CLASS=A,MSGCLASS=A
//POLICY EXEC PGM=IXCMIAPU
//SYSPRINT DD SYSOUT=A
//SYSIN DD *
 DATA TYPE(LOGR) REPORT(YES)
 DEFINE LOGSTREAM NAME(TCOM.IYCLZCCA.DFHSHUNT)  Matches name in CICS Journal Model
 STRUCTNAME(LOG_FV_001)                          Structure that will contain the data
 HIGHOFFLOAD(85)                                 Threshold, expressed as a % of logstream
                                                  space, when offloading is to take place
 LOWOFFLOAD(60)                                  Value, expressed as a % of the space used
                                                  by the logstream, for the offload target
 LS_DATACLAS(LS10MEG)                            SMS data class used for offload datasets
 STG_DUPLEX(YES) DUPLEXMODE=(COND)               Log writes are to be duplexed to the CF and
                                                  Staging Datasets if the CF becomes volatile
 STG_SIZE(9000)                                  No. of 4K control intervals in Staging dataset
 HLQ(IXGLOGR)                                    High level qualifier - offload dataset name
 MODEL(NO)
```

Define Logstream - DASD only

- **Associate log stream names, structure names and attributes.**
  - **Streams may be defined, deleted or updated**

```
//DEFSTR JOB CLASS=A,MSGCLASS=A
//POLICY EXEC PGM=IXCMIAPU
//SYSPRINT DD SYSOUT=A
//SYSIN DD *
DATA TYPE(LOGR) REPORT(YES)
DEFINE LOGSTREAM NAME(TCOM.IYCLZCCA.DFHLOG)  Matches name defined in Journal Model

HIGHOFFLOAD(85)                              Threshold, expressed as a % of logstream
                                              space, when offloading is to take place
LOWOFFLOAD(60)                               Value, expressed as a % of the space used
                                              by the logstream, of the offload target
LS_DATACLAS(LS10MEG)                         SMS dataclass used for offload datasets
STG_SIZE(9000)                               The number of 4K control intervals in the
                                              Staging Dataset.
DASDONLY(YES)                                C. F. structures  will not be used
HLQ(IXGLOGR)                                 High level qualifier - offload dataset name
MODEL(NO)
```

MVS Model Definition

- **Associate log stream names, structure names and attributes.**
  - **The advantage is it's easier to setup**
  - **The disadvantage is all logstreams use the same definitions**

```
//DEFMODEL JOB CLASS=A,MSGCLASS=A
//MODDEF   EXEC  PGM=IXCMIAPU
//SYSPRINT DD SYSOUT=*
//SYSIN DD *
 DATA TYPE(LOGR)  REPORT(YES)
 DEFINE LOGSTREAM NAME(sysname .DFHLOG.MODEL)  sysname  - name of the MVS image
 STRUCTNAME(LOG_DFHLOG_001)                    Structure that will contain the data
 HIGHOFFLOAD(85)                               Threshold, expressed as a % of logstream
                                               space, when offloading is to take place
 LOWOFFLOAD(60)                                Value, expressed as a % of the space used
                                               by the logstream, of the offload target
  LS_DATACLAS(LS10MEG)                         SMS dataclass used for offload datasets
  STG_DUPLEX(YES) DUPLEXMODE=(COND)            Log writes to be duplexed to the CF and
                                               Staging Datasets if CF becomes volatile.
 STG_SIZE(9000)                                Number of 4K C.I.s in the Staging Dataset
 MODEL(YES)                                    A model only,  connection is not permitted
 LS_SIZE(16)                                   The number of 4K blocks for allocation of
                                               offload datasets
                                                 --  MSG IXG256I is issued if the
                                                     value is less than 64K
```

MVS Model Definition notes...

MVS models sysname.DFHLOG.MODEL and sysname.DFHSHUNT.MODEL are required entries in the LOGR policy if CICS is to dynamically create logstreams. 'sysname' is the name of the MVS image as specified in IEASYSxx in SYS1.PARMLIB.

Define Logstream Notes ...

The HIGHOFFLOAD parameter in conjunction with the size of the logstream has a major effect on the amount of storage used by the Logger. Data is written to the interim storage and duplexed to a buffer in the logger dataspace. For a CF logstream, if staging datasets are in use, the data is written to the staging dataset rather than the dataspace.

If the HIGHOFFLOAD value is too high, there will not be enough room in the logstream to accommodate data being written to the logstream during offload processing, this can lead to structure full condition --- which causes log writes to be suspended for 3 seconds.

For DFHLOG and DFHSHUNT, the value should be in the range of 80-85 based on the amount of data which can be written during the offload processing. LOWOFFLOAD can be set at 40-60.

If the extent size of the LS_DATACLAS is too small, DASD shifts (allocation of a new offload dataset) will occur, which has a negative effect on performance. Prior to OS/390 R1.3, the number of datasets is limited to 168, with R1.3 the number is unlimited . Note a logger extent refers to a logger directory which can point to 168 data sets. With OS/390 R1.3, the number of directories is limited only by the amount of DASD available.

The DSEXTENT parameter specified in the LOGR couple data set defines the maximum number of logger directories. Refer to Appendix B: Administrative Data Utility in OS/390 MVS Setting Up a Sysplex for the IXCL1DSU utility and the DSEXTENT parameter.

The same rules apply to the size of the Staging dataset as the CF structure. If the HIGHOFFLOAD threshold of the Staging dataset is reached before the CF, offloading will be triggered. Data is written to the staging dataset in 4096 byte increments, regardless of the buffer size.

Define Structure -LOGR Policy

Sample job to define the CF structure to be used for logstreams.

```
//DEFSTR JOB CLASS=A,MSGCLASS=A
//POLICY EXEC PGM=IXCMIAPU
//SYSPRINT DD SYSOUT=A
//SYSIN DD *

DATA TYPE(LOGR) REPORT(YES)

DEFINE STRUCTURE(LOG_JG)
LOGSNUM(10)
AVGBUFSIZE(400)


MAXBUFSIZE(64000)
```

LOG_JG is the structure name
up to 10 logstreams can connect
size of the starting 'average' buffer
- monitor the 'effective average buffer'

using IXCMIAPU
determines the size of each log buffer
- also defines the CF element size
> 65276 - element size is 512,
= <65276 - element size is 256

Define Structure Notes

The size of a STRUCTURE is specified in the CFRM policy. Each STRUCTURE is divided into ENTRIES and ELEMENTs. Each write uses 1 ENTRY and 1 or more ELEMENTS based on the length of data written.

Each STRUCTURE is divided EQUALLY between the connected log streams. When another log stream connects to the structure, the space is dynamically redistributed.

MAXBUFSIZE in conjunction with AVGBUFSIZE determine the CF structure ENTRY/ELEMENT ratio. When data is written to the CF, it's written in increments equal to ELEMENT size. A buffer size of greater than 65276 gives an element size of 512, a value of 65276 or less results in an element size of 256. For example:

MAXBUFSIZE(65532) AVGBUFSIZE(1100)

CF element is therefore 512 bytes, 3 elements used for an average write and 1 entry Entry/Element ratio is 1:3

Beginning with OS/390 1.3, the Entry/Element ratio is dynamically adjusted.

When ENTRY space becomes 90% full, all logstreams in the structure are offloaded.

Monitor via RMF III post processing

Define Structure - CFRM policy

Sample job to define the CF structure to be used for logstreams.

```
//DEFSTR JOB CLASS=A,MSGCLASS=A
//POLICY EXEC PGM=IXCMIAPU
//SYSPRINT DD SYSOUT=A
//SYSIN DD *

DATA TYPE(CFRM) REPORT(YES)

DEFINE STRUCTURE(LOG_FV_001)
 INITSIZE(10000)
 SIZE(16000)

 PREFLIST(CF01,CF02)

  REBUILDPERCENT(1)
```

LOG_FV_001 is the structure name

INITIAL CF size

if larger than INITSIZE, allows for rebuild up to the SIZE value

specifies coupling facilities preference selection order for this structure

specify this value low so structures are rebuilt in the event of connectivity failure

- a value of 1 indicates that when 1% of the systems loses connectivity to a structure, MVS will initiate a rebuild

RACF Authorizations Required

- **Refer to OS/390: MVS Setting Up a Sysplex**
  - **Define Authorization for the System Logger Address Space**
  - **Authorization for System Logger Applications**
- **IXCMIAPU users**
  - **ALTER RESOURCE(log_stream_name) CLASS(LOGSTRM)**
    - Define, delete, update logstreams
  - **UPDATE RESOURCE(IXLSTR.structure_name) CLASS(FACILITY)**
    - Define and Delete structures
  - **UPDATE RESOURCE(IXLSTR.LIKE.structure_name) CLASS(FACILITY)**
    - Define logstreams using the LIKE function
- **Refer to CICS RACF Security Guide**
- **CICS regions**
  - **ALTER RESOURCE(log_stream_name) CLASS(LOGSTRM)**
    - Allows CICS to dynamically create logstreams
    - If all logstreams predefined to MVS UPDATE authority is sufficient
  - **UPDATE RESOURCE(IXLSTR.structure_name) CLASS(FACILITY)**
    - Write log records to logstreams in a coupling facility structures

How does it tie together?

- **The log stream name used by CICS**
  - **must be defined in the LOGR policy**
  - **characteristics may be obtained from a model in the LOGR policy**
- **The log stream as defined in the LOGR policy**
  - **if using a coupling facility**
    - **must be associated with a structure defined in the LOGR and CFRM policy**
- **During an INITIAL start of the CICS region**
  - **1- locate the JOURNALMODEL - for example DFHLOG**
    - **obtain the log stream name (LSN)**
    - **connect to the named logstream using an IXGCONN call to the logger**
  - **2- if a JOURNALMODEL is not defined**
    - **use the default log stream name &userid..&applid..DFHLOG**
    - **connect to the log stream via an IXGCONN call to the logger**
  - **if the log stream is not defined in the LOGR policy**
    - **using the LSN CICS derived in either step 1 or 2**
    - **CICS will issue an IXGINVNT call (to the MVS logger) to dynamically create the log stream specifying sysname.DFHLOG.MODEL in the LIKE parm**
    - **sysname.DFHLOG.MODEL must be defined as a MODEL to the LOGR**

LSN, data set names

- **Log Stream Name (LSN)**
  - **up to 26 characters in length**
    - xxxxxxxx.yyyyyyyy.zzzzzzzz
- **MVS LOGGER High Level Qualifier (HLQ)**
  - **optional when the logstream is defined in the LOGR policy**
  - **IXGLOGR is the default**
  - **NOT used by CICS**
- **Log Data Set name**
  - **often referred to as the offload data sets**
  - **HLQ.LSN.sequence#**
- **Staging data set name -- used with coupling facility**
  - **HLQ.LSN.system_name**
    - system_name is specified in the IEASYSxx or IEASYMxx parmlib member
- **Staging data set name -- used with DASD logging**
  - **HLQ.LSN.sysplex_name**
    - sysplex_name is specified as SYSPLEX() in the COUPLExx parmlib member

DFHLG0508 & IXG231I

- **Offload dataset names**
  - **HLQ.CICS LSN.generation (or sequence) number**
  - **HLQ (High Level Qualifier) taken from the logstream definition**
    --> defaults to IXGLOGR
  - **CICS LSN (LogStream Name) can be a max of 26 characters**
    --> does NOT include the HLQ

```
DEFINE JOURNALMODEL(CICSLOG)      GROUP(TEST)
       DESCRIPTION('DFHLOG LOGSTREAM USING A TEMPLATE DEFINITION')
      JOURNALNAME(DFHLOG)   TYPE(MVS)     STREAMNAME(SYSJ.GRAUEL.AOR1.DFHLOG )

DEFINE LOGSTREAM NAME(GRAUEL.AOR1.DFHLOG)
STRUCTNAME(LOG_FV_001)  HIGHOFFLOAD(85)  LOWOFFLOAD(60)
LS_DATACLAS(LS10MEG)  STG_DUPLEX(YES) DUPLEXMODE=(COND)
STG_SIZE(9000)   MODEL(NO)    HLQ(SYSJ)
```

DO NOT specify the HLQ as part of the logstream name

```
IXG231I IXGCONN REQUEST=CONNECT TO LOG STREAM SYSJ.GRAUEL.AOR1.DFHLOG
        DID NOT SUCCEED FOR JOB IYK9R5.  RETURN CODE: 00000008  REASON CODE:
        0000080B  DIAG1: 00000008  DIAG2: 0000F801  DIAG3: 05030004  DIAG4: 05020010
+DFHLG0508 IYK95
        30/01/98 00:56:22 IYK95 Log stream SYSJ.GRAUEL.AOR1.DFHLOG not defined
        to MVS because model stream   SYSJ.DFHLOG.MODEL does not exist.
```

The model for *sysname*.DFHLOG.MODEL has not been defined to MVS

IXG003I ..... UNEXPECTED ERROR

```
LINE #      CONTROL CARDS

     1        DATA TYPE(LOGR) REPORT(NO)
     2        DEFINE LOGSTREAM NAME(MARK.AASS56.DFHLOG)
     3                         STRUCTNAME(LOG_CHNGTEAM_001)
     4                         HLQ(SYS1)
ADMINISTRATIVE DATA UTILITY:  MESSAGES                        DATA TYPE = LOGR      03/09/1998
17:33:27

IXG005I LOGR POLICY PROCESSING LINE# 2
IXG033E USER DOES NOT HAVE SAF AUTHORIZATION TO PERFORM THE DEFINE REQUEST
IXG002E LOGR POLICY PROCESSING ENDED WITH RETCODE=00000008 RSNCODE=0000080D
IXG003I LOGR POLICY PROCESSING ENCOUNTERED AN UNEXPECTED ERROR.
                               DIAGNOSIS INFORMATION: 00000008 00000000 05050000 00000000

17.33.27 JOB07603  IEF403I DBALOGJO - STARTED - TIME=17.33.27
17.33.27 JOB07603  ICH408I USER(GRAUEL  ) GROUP(TSOUSER ) NAME(GRAUEL   (Jim)       )
                     IXLSTR.LOG_CHNGTEAM_001 CL(FACILITY)
                     INSUFFICIENT ACCESS AUTHORITY
                     FROM IXLSTR.** (G)
                     ACCESS INTENT(UPDATE )  ACCESS ALLOWED(NONE    )
```

User does not have authority to delete and define structures

```
LINE #      CONTROL CARDS

     1       DATA TYPE(LOGR) REPORT(NO)
     2       DELETE LOGSTREAM NAME(IYCPZC08.DFHLOG)
     3       DEFINE LOGSTREAM NAME(IYCPZC08.DFHLOG) MODEL(NO)
     4              STRUCTNAME(LOG_PF_001) LOWOFFLOAD(50) HIGHOFFLOAD(85)
     5              LS_STORCLAS(STAGEDS2) LS_DATACLAS(LS10MEG)

ADMINISTRATIVE DATA UTILITY:  MESSAGES                        DATA TYPE = LOGR      03/10/1998
09:08:18

IXG005I LOGR POLICY PROCESSING LINE# 2
IXG017E LOGSTREAM IYCPZC08.DFHLOG DOES NOT EXIST
IXG002E LOGR POLICY PROCESSING ENDED WITH RETCODE=00000008 RSNCODE=0000080B
IXG003I LOGR POLICY PROCESSING ENCOUNTERED AN UNEXPECTED ERROR.
                               DIAGNOSIS INFORMATION: 00000008 0000F801 05030004 05020010
Allocation error message from console ---
IXG251I IKJ56883I DATA SET IXGLOGR.IYCPZC08.DFHLOG.A0000000 NOT ALLOCATED,  REQUEST CANCELED
```

User does not have authority to allocate logger offload data sets (HLQ=IXGLOGR)

Messages

```
DFHPA1101  IYK91    DFHSITDZ IS BEING LOADED.
DFHPA1108  IYK91    DFHSITDZ HAS BEEN LOADED. (GENERATED AT: MM/DD= 07/18 HH:MM= 19:14).
DFHPA1100  IYK91    OVERRIDE PARAMETERS FROM JCL EXEC STATEMENT: SIT=DZ,SYSIN
DFHPA1102  IYK91    OVERRIDE PARAMETERS FROM SYSIN:
DFHPA1927  IYK91      AKPFREQ=200
DFHPA1927  IYK91      START=AUTO
DFHPA1927  IYK91      SPOOL=YES,DUMPDS=A
DFHPA1103  IYK91    END OF FILE ON SYSIN.
DFHLG0101I IYK91    Log manager domain initialization has started.
DFHSI1500  IYK91    CICS for MVS/ESA Version 5.1.0 Startup is in progress.
DFHRM0141  IYK91    Recovery manager autostart override record is not present. Normal processing continues.
DFHLG0103I IYK91    System log (DFHLOG) initialization has started.
DFHLG0104I IYK91    System log (DFHLOG) initialization has ended.
DFHLG0103I IYK91    System log (DFHSHUNT) initialization has started.
DFHLG0104I IYK91    System log (DFHSHUNT) initialization has ended.
DFHLG0102I IYK91    Log manager domain initialization has ended.


DFHRM0201 10/12/97 17:36:43 IYK91 0 backout-failed and 1 commit-failed UOWs were reconstructed.

DFHRM0205 11/12/97 16:47:57 IYK91 An activity keypoint has been successfully taken.
DFHLG0743 11/12/97 16:47:57 IYK91 Tail of log stream REESMK.IYK91.DFHLOG deleted at block id X'0000000524C388B0'.
DFHLG0743 11/12/97 16:47:58 IYK91 Tail of log stream REESMK.IYK91.DFHSHUNT deleted  block id X'0000000100141959'

DFHRM0205 11/12/97 16:49:04 IYK91 An activity keypoint has been successfully taken.
DFHLG0743 11/12/97 16:49:04 IYK91 Tail of log stream REESMK.IYK91.DFHLOG deleted at block id X'0000000524C5354E'.

. . . . . .

DFHRM0205 11/12/97 16:54:37 IYK91 An activity keypoint has been successfully taken.
DFHLG0743 11/12/97 16:54:37 IYK91 Tail of log stream REESMK.IYK91.DFHLOG deleted at block id X'0000000524CE236F'.
DFHLG0743 11/12/97 16:54:37 IYK91 Tail of log stream REESMK.IYK91.DFHSHUNT deleted  block id X'0000000100142883'.
```

Monitoring the System Logger

- **SMF Type 88 Records**
  - **Written periodically and at Disconnect time**
  - **Provide Assistance with Tuning**
  - **SMF 88 Subtype 1 records used for Logstream tuning**
    - interim storage usage
    - data set switches
  - **SMF 88 Subtype 11 records used for Structure tuning**
    - Dynamic adjustment of structure entry to element ratio
    - New as of OS/390 R1.3
  - **See Macro IXGSMF88 for details**
  - **See IXGRPT1 in SAMPLIB for generating a report**
    - supplied in PL/I only
    - OW36423 provides IXGRPT1J and IXGRPT1L which do not require PL/I

Problems to avoid

- **DFHLSCU - no records found on journal**
  - **DCB=RECFM=VB must be specified**
- **Offload dataset allocation errors - reason code 805**
  - **indicates logger has received an error from underlying services**
    - **RACF, DFSMS, ACS Routines, and DADSM**
  - **can be seen off-line (IXCMIAPU) and during CICS startup**
    - **if the logstreams are not predefined in the LOGR policy**
  - **ensure the logstream name is 26 characters or less**
  - **insufficient RACF authorization**
    - **IXG003I LOGR POLICY PROCESSING ENCOUNTERED AN UNEXPECTED ERROR. DIAGNOSIS INFORMATION: 00000004 00000402 0107001B 00000000**
  - **insufficient space available**
  - **check for related product messages**
    - **IXG251I in the system log**
    - **IXG231I in the CICS job log**
    - **IGDxxx messages (DFSMS) in the system log**
    - **ICH408I in the system log**
    - **IECxxx messages**

Problems to avoid ...

- Large number of DASD shifts (allocation of offload datasets)
  - check LS_SIZE on logstream definition
  - extent size in data class
  - extent size in ALLOCxx member of SYS1.PARMLIB
- IXG002E - RETCODE=00000008 RSNCODE=0000080B
  - insufficient authority to delete/define offload datasets
- IXG002E - RETCODE=00000008 RSNCODE=0000080D
  - insufficient authority to delete/define structures
- IXG002E - RETCODE 00000008 RSNCODE 00000814
  - SYSPLEX is in LOCAL mode (PLEXCFG= XCFLOCAL)
    - specified in the IEASYSxx member of SYS1.PARMLIB
- IXG254I SMS IS NOT INSTALLED
  - the SMS address space must be active for allocation of offload and staging datasets
- IXG256I
  - size specified in LS_SIZE or the extent size specified in either the SMS DATACLASS or ALLOCATxx parmlib member is less than 64K

Problems to avoid ....

- **DFHLG0508**
  - **MVS model stream does not exist**
    - **model for *sysname*.DFHLOG.MODEL has not been defined to MVS**
- **DFHLG0777 reason code 868**
  - **A temporary error condition occurred during MVS logger operation**
  - **NOTE - it is normal to see one of these messages at connect time during CICS startup when the staging dataset is being allocated**
    - **the number of 868 errors returned during startup depends on staging D.S. size**
- **Log Tail deletion not happening on DFHLOG or DFHSHUNT**
    - **(there are no DFHLG0743 messages)**
  - **AKPFREQ=0**
  - **AUTODELETE(YES) with RETPD>0**
  - **long running tasks**
  - **Keypoint task (CSKP) abend**
    - **CSKP pointing to DFHAKP in a user group migrated from R410**
  - **SYSLOG=KEEP (CTS 1.1 only)**

Problems to avoid .....

- **DFHLG0772 MVS logger codes: X'00000004', X'00000403'.**
  DFHLG0772 MVS logger codes: X'00000008', X'0000084A'.
  - **with associated message IEC161I 052(009)-084**
    - **error opening a shareoption 1,x dataset**
  - **or message IEC161I 052(015)-084**
    - **error opening a shareoption 2,x dataset**
  - **logstream datasets *must* be defined with shareoption (3,3)**

- **DFHLG0772 reason code 80C**
  - **with associated message**
    IXG251I RETURN CODE IS 68 REASON CODE IS 20 IGG0CLEW
  - **insufficient DASD space for dataset allocation**
    - **this could be related to the SMS storage group or the volumes selected by ACS (Automatic Class Selection) routines**

- **DFHLG0777 reason code 865 - Staging Dataset full**
  - **see log tail deletion above**
  - **increase STG_SIZE on the logstream definition**

Problems to avoid .....

- System page rate is too high
  - reduce the structure or staging dataset sizes
- Response Time problems
  - LG_DEFER or LG_FORCE waits
  - LGDFINT SIT parm may be used to reduce the 30ms delay waiting for additional records to be placed in the buffer
  - refer to PQ17925 and PN87988
- Unnecessary log records for read only mirror (CSMI) tasks
  - extra MRO sequence set records for read only mirrors
  - PQ32338 corrects the problem
- IEF196I ICH408I JOB(IEESYSAS) STEP(IXGLOGR)
  - The IXGLOGR address space and the userid assigned can be given the *trusted* attribute (via either the STARTED class or ICHRIN03).

    or
  - The appropriate PERMITs can be issued for the resources accessed by the address space, using the userid assigned.
  - Refer to Setting Up a Sysplex - LOGR security

Neat things to Know

- **HSM is NOT required**
  - **although it does make management of offload datasets easier**
  - **HSM should not be used for DFHLOG and DFHSHUNT**
  - **even though HSM archives the dataset, it is still counted in the logger inventory (i.e. one of the datasets in an extent)**
  - **it is very important to have *ALL* logstream datasets defined with shareoptions(3,3)**

- **Ensure multiple systems have connections to the same structure**
  - **allows for peer recovery when a system fails**
  - **logger instances only connect to structures to which they have an interest and only when requested**

- **AUTODELETE and RETPD >0 (can be used for *user journals*).**
  - **the customer will not be required to have delete jobs, but does mean the inventory can grow significantly**

Neat things to Know ...

- **Do NOT use IDCAMS to print a logstream**
  - **may NOT show the data from an offload dataset**
    - **When the offload dataset is allocated it is opened EXCLUSIVE, formatted and the high RBA is set to the CISIZE. It is then closed and reopened SHARE**
    - **LOGGER tracks high the RBA of log datasets in the OCONTROL part of the couple dataset**
    - **the RBA is not updated in VSAM until the offload dataset fills and an additional dataset is allocated**
    - **using IDCAMS to print will normally only print the initial data.**
  - **a utility such as DFHJUP which calls logger services is required**

- **Using DFHJUP to copy and delete data from the offload datasets (i.e.. for a user journal) with RETPD=0**
  - **on the next allocation of an offload dataset, the data is physically deleted, when the complete dataset is deleted, the DASD space is returned to MVS and the inventory count will be reduced by 1**

- **Use IXCMIAPU with LIST LOGSTREAM DETAIL(YES)**
  - **obtain information logstream, i.e. low valid blockid, and high timestamp**

Things to remember

- **Each log stream will require enough structure storage to hold data written in an AKP interval + the duration of the longest UOW**

- **Log Tail deletion is based on activity keypoint frequency (AKPFREQ)**
  - **AKPFREQ=0 causes no deletion to be performed**
  - **specifying AUTODELETE(YES) with RETPD>0, all data is offloaded**

- **Logstreams in same structure should have similar characteristics**
  - **Similar AVGBUFSIZE and MAXBUFSIZE requirements**
    - Structure entry to element ratio is the same for all streams.
  - **Similar storage requirements**
    - Structure storage is partitioned equally between actively connected log streams in the structure

- **Logger dataspace size affects system paging**
  - **related to the amount of data in the structure and/or the staging dataset**

Things to remember ...

- **If the extent size of the LS_DATACLAS is too small**
  - **frequent DASD shifts will occur**
    - **negative impact on performance.**
  - **overridden using LS_SIZE on the logstream definition**
  - **default is taken from ALLOCATxx parmlib member**
    - **2 tracks**

- **LS_SIZE and STG_SIZE are specified in 4k increments**
  - **IXG256I issued if LS_SIZE is less than the minimum of 64K**
  - **SIZE in CFRM policy is in 1K increments!**
  - **STG_SIZE must be at least as large as structure size.**
    - Defaults to the maximum structure size

- **Structures**
  - **Large enough to hold the data for connected logstreams**

Things to remember ...

- **Log stream data sets**
  - **Only MVS logger utilities should cause their deletion**
  - **Migration is OK**
    - **Logger detects migrated data sets and handles their recall.**
  - **Allocated exclusive when created/deleted, otherwise allocated shared**
  - **May see N-1, N and N+1 log stream data sets allocated even when no browse operation is in effect. No problem.**
  - **Log stream is written to the offload dataset(s) when last connected region disconnects**
    - **(i.e. when CICS shutdowns DFHLOG and DFHSHUNT are offloaded)**
- **Staging datasets (both CF and DASDONLY) are released**
  - **once the data has been offloaded from the dataspace when the last connection is deleted**
- **Log stream and log stream staging datasets are single extent VSAM linear datasets (shareoptions '3,3')**

Things to remember ....

- **Ensure the correct security authorizations have been set**
- **Long running tasks have a big effect on sizing**
  - **conversational tasks using recoverable resources**
- **If running an alternative serialization product, define the QNAME 'SYSZLOGR' as a global resource**
- **A high value for HIGHOFFLOAD**
  - **can lead to structure full condition for CF logstreams**
    - log writes are suspended for 3 seconds
  - **can lead to staging dataset full for DASDONLY logstreams**
- **Apply all APARs w/keyword 'LOGRSERVICE'**
  - **MVS Logger serviceability improvements**
- **Apply all CICS APARs w/keyword 'CICSLOGR'**
  - **CICS logger function**

References

- *OS/390 MVS Setting Up a Sysplex - GC28-1779*
  - **Lists other useful publications in Chapter 9:**
    - **Finding Information for CICS Log Manager in topic 9.3.1.**
    - **Finding Information for OPERLOG Log Stream in topic 9.3.2.**
    - **Finding Information for Logrec Log Stream in topic 9.3.3**

- *MVS Diagnosis: Tools and Service Aids - LY28-1085, Chapter 13*

- *OS/390 MVS Assembler Services Guide - GC28-1762*
- *MVS Programming: Authorized Assembler Services Reference,*
  - *Volume 2 - GC28-1765*
  - *Lists return and reason codes and symbols*
    - *For example ---- 08 | xxxx0804 | Equate Symbol: IxgRsnCodeNoBlock*
- *OS/390 Parallel Sysplex Configuration Cookbook,*
  - *Vols. 1-3, SG24-2075, SG24-2076, SG24-2077*
    - *(See Vol. 2, SG24-2076 for Logger info)*

References

- ***CICS Transaction Server for OS/390 Version 1 Release 3***
  - ***Migration Guidance***
  - ***Installation Guidance Chapter 20***
- ***CICS Transaction Server for OS/390 Version 1 Release 2 Implementation Guide -(Redbook) - SC24-2234***

Appendix A

- **OW27153 -- Display Logger command**
- **Data gathering tips**
  - **SLIP trap**
  - **Offload time**
- **Sample SMS Constructs**

OW27153 -- Display Logger command

APAR OW27153 describes the command and messages:

Displaying the System Logger and its Log Streams

Use the DISPLAY LOGGER command to display the status of the system logger, individual log streams, or log streams from a sysplex view.

Note: You can use a wildcard character with the DISPLAY LOGGER command. You can modify the DISPLAY output by specifying an asterisk (*) as the search argument, or by specifying an asterisk as the last character of a larger search argument. If used, a wildcard must be the last character in a search argument, or the only character.

Restrictions

* **Do not use the same parameter twice within a single command.**

* **Do not exceed a command line length of 128 characters.**

OW27153 -- Display Logger command ..

Syntax

```
-------------------------------------------------------------------------
D LOGGER

[  {,STatus                          }

  {,Connection
        [ {,LSName=logstreamname
           [,Jobname=jobname]
           [,Summ|Detail]                 }
          {,Jobname=jobname
           [,LSName=logstreamname]
           [,Summ|Detail]                  }
          {,SYSPLEX[,LSName=logstreamname]}
          {,DASDONLY}                              ] }

  {,Logstream
        [ {[,LSName=logstreamname]
           [,STRName=structurename] }
          {[,LSName=logstreamname]
           [,DASDONLY]                 }           ] }


  {,STRucture[,STRName=structurename]}       ]
```

OW27153 -- Display Logger command ...

The parameters are:

STATUS or ST
Display the current operational status of the system logger. STATUS is the default for the Display LOGGER command if no parameters are specified. Possible status values are:

NOT AVAILABLE FOR IPL Due to XCF local mode, the system logger will not be available for the life of this IPL.

INITIALIZING The system logger is in the process of initializing.
ACTIVE The system logger is up and running.
NOT ACTIVE The system logger has terminated.

CONNECTION or CONN or C
Display all log streams with one or more connections for the system(s) on which the command was issued. However, if the SYSPLEX filter is used, change the view of the output to the systems/resources that are connected to the log stream (a sysplex view).

LSNAME or LSN = logstreamname
This filter requests a display of all actively connected log streams matching the specified logstream name.

JOBNAME or JOB or J = mvsjobname
This filter requests a display of all log streams with one or more connections to which the specified jobname is connected.

SUMM or S, or DETAIL or D
These two parameters are valid only when LSNAME or JOBNAME is specified as part of the CONNECTION display. SUMM (summary) is the default if not specified, and will display a condensed overview of information pertinent to the command that was invoked. DETAIL will result in a more detailed report.

SYSPLEX
This filter requests to change the view of the output for the display logger command CONNECTION option from a system view to a sysplex view showing systems and resources connected to a log stream. The display will show all log streams with one or more connections on the sysplex.

Note: You may use the LSNAME|LSN filter to narrow the information to search for and display.

DASDONLY
This filter requests a display of all log streams with a DASDONLY configuration.

OW27153 -- Display Logger command ....

LOGSTREAM or L
Display log stream sysplex information.

LSNAME or LSN = logstreamname
This filter requests a display of all defined log streams matching the specified log stream name.

STRNAME or STRN = structurename
This filter displays all log streams on the sysplex which are defined to a structure that matches the specified structure name.

DASDONLY
This filter requests a display of all log streams matching other filters with a DASDONLY configuration.

STRUCTURE or STR
Sort by structure name and display all log streams defined to a structure on a sysplex.

STRNAME or STRN = structurename
This filter requests a sort by structure and display of all defined log streams on the sysplex matching the specified structure name.

Example 1:
Display the current operational status of the System Logger.
DISPLAY LOGGER,STATUS

Example 2:
Display all log streams with one or more connections for the system that match the log stream name starting with the letters "LOGSTR".
DISPLAY LOGGER,CONN,LSN=LOGSTR*

Example 3:
Display all log streams with at least one active connection in the sysplex that matches the log stream name starting with the letters "LOGSTR".
DISPLAY LOGGER,CONN,SYSPLEX,LSN=LOGSTR*

Example 4:
Display all defined log streams for the sysplex that match the log stream name of "LOGA" and have associated structure names that start with "LIST".
DISPLAY LOGGER,L,LSN=LOGA,STRN=LIST*

Example 5:
Display all defined log streams for the sysplex that start with "LOGSTR" and have a DASD-only configuration.
DISPLAY LOGGER,L,LSN=LOGSTR*,DASDONLY

Example 6:
Display all defined log streams for the sysplex and sort by structure name starting with the letters "LIST".
DISPLAY LOGGER,STR,STRN=LIST*

Display Logger command

d logger
d logger,status

d logger,connection
d logger,connection,lsn=*
d logger,connection,lsn=*,s
d logger,connection,lsn=*,d
d logger,connection,job=*
d logger,connection,job=*,s
d logger,connection,job=*,d
d logger,connection,lsn=*,job=*
d logger,connection,lsn=*,job=*,s
d logger,connection,lsn=*,job=*,d
d logger,connection,job=*,lsn=*
d logger,connection,job=*,lsn=*,s
d logger,connection,job=*,lsn=*,d
d logger,connection,sysplex
d logger,connection,sysplex,lsn=*
d logger,connection,dasdonly

d logger,logstream
d logger,logstream,lsn=*

d logger,logstream,strn=*
d logger,logstream,lsn=*,strn=*

d logger,logstream,strn=*,lsn=*
d logger,logstream,dasdonly
d logger,logstream,dasdonly,lsn=*
d logger,logstream,lsn=*,dasdonly

d logger,structure
d logger,structure,strn=*

Display Logger,LOGSTREAM

```
MV2C   98327 04:09:52.23 GRAUEL   00000280  D LOGGER,LOGSTREAM

MV2C   98327 04:09:58.32 GRAUEL   00000080  IXG601I   04.09.52  LOGGER DISPLAY 802
                            802   00000080  INVENTORY INFORMATION BY LOGSTREAM
                            802   00000080  LOGSTREAM                 STRUCTURE        #CONN  STATUS
                            802   00000080  ---------                 ---------        ------ ------
                            802   00000080  ABRODIE.IYK3ZFZ1.DFHLOG   *DASDONLY*       000000 AVAILABLE
                            802   00000080  ABRODIE.IYK3ZFZ1.DFHSHUNT *DASDONLY*       000000 AVAILABLE

                            802   00000080  GRAUEL.IYOT1.DFHLOG       *DASDONLY*       000001 IN USE
                            802   00000080    SYSNAME: MV2C
                            802   00000080      STG DS: YES
                            802   00000080  GRAUEL.IYOT1.DFHSHUNT     *DASDONLY*       000001 IN USE
                            802   00000080    SYSNAME: MV2C
                            802   00000080      STG DS: YES
                            802   00000080  TROUT.LG000.DFHLOG        LOG_SYSTEST_001  000001 IN USE
                            802   00000080    SYSNAME: MV26
                            802   00000080      STG DS: NO
                            802   00000080  TROUT.LG000.DFHSHUNT      LOG_SYSTEST_002  000001 IN USE
                            802   00000080    SYSNAME: MV26
                            802   00000080      STG DS: NO

MV2C   98328 02:57:41.25 GRAUEL   00000280  D LOGGER,LOGSTREAM,LSN=GRAUEL.IYOT1.DFHLOG

MV2C   98328 02:57:41.47 GRAUEL   00000080  IXG601I   02.57.41  LOGGER DISPLAY 294
                            294   00000080  INVENTORY INFORMATION BY LOGSTREAM
                            294   00000080  LOGSTREAM                 STRUCTURE        #CONN  STATUS
                            294   00000080  ---------                 ---------        ------ ------
                            294   00000080  GRAUEL.IYOT1.DFHLOG       *DASDONLY*       000001 IN USE
                            294   00000080    SYSNAME: MV2C
                            294   00000080      STG DS: YES
```

Display Logger,STRUCTURE

```
MV2C     98328 03:11:11.92 GRAUEL   00000280  D LOGGER,STRUCTURE
MV2C     98328 03:11:17.78 GRAUEL   00000080  IXG601I   03.11.11  LOGGER DISPLAY 392
                             392 00000080  INVENTORY INFORMATION BY STRUCTURE
                             392 00000080  STRUCTURE                                CONNECTED
                             392 00000080  ---------                                ---------
                             392 00000080  LOG_CHNGTEAM_001
                             392 00000080    *NO LOGSTREAMS DEFINED*                  N/A
                             392 00000080  LOG_DEVELOP_001
                             392 00000080    *NO LOGSTREAMS DEFINED*                  N/A

                             392 00000080  LOG_GENERAL_001
                             392 00000080    BUXTON.IYK2ZET1.DFHLOG                   NO
                             392 00000080    BUXTON.IYK2ZET1.DFHSHUNT                 NO
                             392 00000080    FVDATAA.IYK3Z7AA.DFHLOG                  NO
                             392 00000080    FVDATAA.IYK3Z7AA.DFHSHUNT                NO
                             392 00000080    ABULL.IYK2ZFX2.BAMAUDIT                  NO
                             392 00000080  LOG_GENERAL_002


MV2C     98328 02:48:36.95 GRAUEL   00000280  D LOGGER,STRUCTURE,STRN=LOG_SYSTEST_001

MV2C     98328 02:48:42.53 GRAUEL   00000080  IXG601I   02.48.36  LOGGER DISPLAY 034
                             034 00000080  INVENTORY INFORMATION BY STRUCTURE
                             034 00000080  STRUCTURE                                CONNECTED
                             034 00000080  ---------                                ---------
                             034 00000080  LOG_SYSTEST_001
                             034 00000080    TROUT.LG000.DFHLOG                     NO
                             034 00000080    TROUT.LG004.DFHLOG                     NO
                             034 00000080    TROUT.LG008.DFHLOG                     NO
                             034 00000080    TROUT.LGAC1.DFHLOG                     YES
                             034 00000080    CTS.CTSCICS.LOG                        NO
                             034 00000080    CTS.V130.IYCQCTSS.DFHJ01               NO
                             034 00000080    CTS.V130.IYCSCTSS.DFHJ01               NO
```

Display Logger,CONNECTION

```
MV2C     98328 03:25:01.57 GRAUEL   00000280  D LOGGER,CONNECTION

MV2C     98328 03:25:01.60 GRAUEL   00000080  IXG601I   03.25.01  LOGGER DISPLAY 962
                              962  00000080  CONNECTION INFORMATION BY LOGSTREAM FOR SYSTEM MV2C
                              962  00000080  LOGSTREAM                  STRUCTURE        #CONN  STATUS
                              962  00000080  ---------                  ---------        ------ ------
                              962  00000080  ATR.PLEX2.RM.DATA          LOG_RRS_TEST     000001 IN USE
                              962  00000080  ATR.PLEX2.MAIN.UR          LOG_RRS_TEST     000001 IN USE
                              962  00000080  ATR.PLEX2.DELAYED.UR       LOG_RRS_TEST     000001 IN USE
                              962  00000080  ATR.PLEX2.RESTART          LOG_RRS_TEST     000001 IN USE
                              962  00000080  ATR.PLEX2.ARCHIVE          LOG_RRS_TEST     000001 IN USE
                              962  00000080  GRAUEL.IYOT1.DFHLOG        *DASDONLY*       000001 IN USE
                              962  00000080  GRAUEL.IYOT1.DFHSHUNT      *DASDONLY*       000001 IN USE

MV2C     98328 03:32:22.28 GRAUEL   00000280  D LOGGER,CONNECTION,LSN=GRAUEL.IYOT1.DFHLOG,S

MV2C     98328 03:32:22.31 GRAUEL   00000080  IXG601I   03.32.22  LOGGER DISPLAY 927
                              927  00000080  CONNECTION INFORMATION BY LOGSTREAM FOR SYSTEM MV2C
                              927  00000080  LOGSTREAM                  STRUCTURE        #CONN  STATUS
                              927  00000080  ---------                  ---------        ------ ------
                              927  00000080  GRAUEL.IYOT1.DFHLOG        *DASDONLY*       000001 IN USE

MV2C     98328 03:42:43.12 GRAUEL   00000280  D LOGGER,CONNECTION,LSN=GRAUEL.IYOT1.DFHLOG,D

MV2C     98328 03:42:43.16 GRAUEL   00000080  IXG601I   03.42.43  LOGGER DISPLAY 928
                              928  00000080  CONNECTION INFORMATION BY LOGSTREAM FOR SYSTEM MV2C
                              928  00000080  LOGSTREAM                  STRUCTURE        #CONN  STATUS
                              928  00000080  ---------                  ---------        ------ ------
                              928  00000080  GRAUEL.IYOT1.DFHLOG        *DASDONLY*       000001 IN USE
                              928  00000080  STG DS: YES
                              928  00000080      JOBNAME: IYOT1     ASID: 0056
                              928  00000080        R/W CONN: 000000 / 000001
                              928  00000080        RES MGR./CONNECTED: *NONE*    / NO
                              928  00000080        IMPORT CONNECT: NO
```

Time for an OFFLOAD

To activate CTRACE for the logger component:

TRACE CT,5M,COMP=SYSLOGR -- allocate 5M of buffers for the logger CTRACE

R xx,OPTIONS=(ALL),END

The buffers will be contained in a dump of the logger and it's address space.

Format the trace using IPCS IPCS CTRACE COMP(SYSLOGR)

Refer OS/390 MVS Diagnosis: Tools and Service Aids

Sample output (edited):

```
MVSB      CONNECT   04190004  10:12:45.060080  IXGF1IWO ENTRY
MVSB      CONNECT   04190005  10:12:45.060107  IXGF1IWO EXIT
MVSB      LOGSTRM   04160010  10:12:45.065329  WOW ENTRY
MVSB      LOGSTRM   04160011  10:12:45.067087  WOW START
MVSB      LOGSTRM   04160014  10:12:45.254011  WOW UPDATE OCNTL
MVSB      LOGSTRM   04160013  10:12:45.258315  WOW UPDATE PCNTL
MVSB      LOGSTRM   04160012  10:12:45.258695  WOW EXIT
-----
MVSB      CONNECT   04190004  10:12:44.099483  IXGF1IWO ENTRY
MVSB      CONNECT   04190005  10:12:44.099513  IXGF1IWO EXIT
MVSB      LOGSTRM   04160010  10:12:44.105150  WOW ENTRY
MVSB      LOGSTRM   04160011  10:12:44.106882  WOW START
MVSB      LOGSTRM   04160014  10:12:44.287855  WOW UPDATE OCNTL
MVSB      LOGSTRM   04160013  10:12:44.291762  WOW UPDATE PCNTL
MVSB      LOGSTRM   04160012  10:12:44.292174  WOW EXIT
-----
```

.198615 seconds

.192691 seconds

In this example, the offload was for a 50M structure .

Gathering Doc. --- SLIP Trap

The following SLIP may be used in cases where information is required from both CICS and the MVS logger for problem resolution. The example SLIP provided is such that it will just fit in the extended operator command area on MVS V5. The xx,yy,zz values must be replaced with the appropriate operator reply numbers as each segment is entered.

In the example, the SLIP will trigger when a DFHRM04xx message is written to the console.
Key information is REQUIRED in order to capture all the data. Replace cicsjob with the name(s) of the CICS JOBs to be dumped. The other key piece of information is the structure name which contains the logstream. The name is obtained by running the IXCMIAPU utility.

In the example, the CICS region is IYOT2 with a logstream name of GRAUEL.IYOT2.DFHLOG. In the IXCMIAPU output, search for the logstream name and the structure name is listed. This is the structure name which must be provided in the SLIP.

Most CICS logger problems are not intermittent (there will always be exceptions) and so once the problem is encountered, it will be possible to run the utility and set the SLIP with the correct information.

```
**********************************************************
To change the SLIP to trigger on a DFHLG077x message alter the second line of the SLIP to
+4,EQ,C4C6C8D3,+8,EQ,C7F0F7F7),A=SVCD,JOBLI    <change the message
**********************************************************
For all logger problems the logstreams should be printed using DFHJUP, and the offload datasets
should saved (IDCAMS REPRO).
**********************************************************
```

```
SLIP SET,IF,LPAMOD=(IGC0003E,0),DATA=(1R?
+4,EQ,C4C6C8D9,+8,EQ,D4F0F4),A=SVCD,JOBLI    <change the message
ST=(cicsjob,IXGLOGR,XCFAS),                  <change the CICS Job Name

xx,DSPNAME=('XCFAS'.*,'IXGLOGR'.*),STRLIS
T=(STRNAME=LOG_SYSTEST_001,LOCKENTRIEs,AC    <change the structure name
C=NOLIM,(LISTNUM=ALL,

yy,ENTRYDATA=SERIALIZE,ADJUNCT=CAPTURE)),
SDATA=(RGN,XESDATA,ALLNUC,CSA,LSQA,PSA,SQ
SWA,TRT,COUPLE,WLM,GRSQ,LPA),

zz,ID=LOGR,REMOTE=(JOBLIST,DSPNAME,SDATA),END
```

SMS Constructs notes ....

```
DATA CLASS DEFINITION
-----------------------
CDS Name  . . . : ACTIVE
Data Class Name : LOGGER

Description :
Recorg . . . . . . . . . : LS
Recfm  . . . . . . . . . :
Lrecl  . . . . . . . . . :
Keylen . . . . . . . . . :
Keyoff . . . . . . . . . :
Space Avgrec . . . . . . : M
      Avg Value  . . . . : 1
      Primary  . . . . . : 10
      Secondary  . . . . :
      Directory  . . . . :
Retpd Or Expdt . . . . . :
Volume Count . . . . . . : 1
  Add'l Volume Amount  . :
Imbed  . . . . . . . . . :
Replicate  . . . . . . . :
CIsize Data  . . . . . . :
% Freespace CI . . . . . :
            CA . . . . . :
Shareoptions Xregion . . : 3
             Xsystem . . : 3
Compaction . . . . . . . :
Media Interchange
  Media Type . . . . . :
  Recording Technology :
Data Set Name Type  . . . :
  If Extended . . . . . :
  Extended Addressability : NO
Reuse . . . . . . . . . . : NO
Initial Load  . . . . . . : RECOVERY
```

```
STORAGE CLASS DEFINITION
------------------------
CDS Name  . . . . . : ACTIVE
Storage Class Name  : LOGPLEXE
Description  : MVS SYSTEM LOGSTREAMS FOR PELPLEXE
Performance Objectives
  Direct Millisecond Response  . . . : 5
  Direct Bias  . . . . . . . . . . . : WRITE
  Sequential Millisecond Response  . : 5
  Sequential Bias  . . . . . . . . . : WRITE
  Initial Access Response Seconds  . :
  Sustained Data Rate (MB/sec) . . . :
Availability . . . . . . . . . . . . : NOPREF
Accessibility  . . . . . . . . . . . : CONTINUOUS
PREFERRED
Guaranteed Space . . . . . . . . . . : NO
Guaranteed Synchronous Write . . . . : NO
```

Note -- Space is really determined by the number of blocks and frequency of writes, this value is actually overriden by the LOGR policy

SMS Constructs notes .....

```
STORAGE GROUP DEFINITION
------------------------
CDS Name . . . . . : ACTIVE
Storage Group Name : LOGGER        * SYS GROUP = sysplex minus systems in
Total Space for Storage Group        sysplex explicitly defined in SCDS
 MB-total:   32484
 MB-free :   25917   Available Group                    Available Group
 % Free  :  79    Space For Allocation              Space For Allocation
System/Sys SMS SG MB-     MB-     %     System/Sys SMS SG MB-     MB-
Group Name Status Total   Free    Free  Group Name Status Total   Free
---------- ------ ------- ------- ----  ---------- ------ ------- ------
*PELPLEXE  ENABLE   32484   25917   79  P09        ENABLE   32484   2591
P10        ENABLE   32484   25917   79
                                                      Entries 1-12 of 12
Enter Line Operators below:                           Data Columns 3-8

     LINE       VOLUME  FREE     %     ALLOC    FRAG   LARGEST  FREE
     OPERATOR   SERIAL  SPACE    FREE  SPACE    INDEX  EXTENT   EXTENTS
    ---(1)----  -(2)--  --(3)--  (4)-  --(5)--  -(6)-  --(7)--  --(8)--
                ILGR01 2728560    98    42940      2  2718378        2
                ILGR02 2765912    99     5588      0  2765912        1
                ILGR03 2753461    99    18039      0  2753240        2
                ILGR04 2728560    98    42940      0  2728338        2
                ILGR05 1459209    53  1312291      3  1451738        2
                ILGR06 2741010    99    30490      0  2740789        2
                ILGR07 2753461    99    18039      0  2753240        2
                ILGR08 1484331    54  1287169      0  1484110        2
                ILGR09 1471881    53  1299619      0  1471659        2
                ILGR10 1434529    52  1336971      0  1434308        2
                ILGR11 1471881    53  1299619     42  1274940        3
                ILGR12 2741010    99    30490      0  2740789        2
```

SMS Constructs notes .....

```
MANAGEMENT CLASS DEFINITION
---------------------------
CDS Name  . . . . . . . : ACTIVE
Management Class Name . : LOGPLEXE

Description  : SYSTEM LOGSTREAMS FOR PELPLEXE

Expiration Attributes
  Expire after Days Non-usage  . : NOLIMIT
  Expire after Date/Days . . . . : NOLIMIT
  Retention Limit  . . . . . . . : NOLIMIT

Partial Release . . . . . . : NO

Migration Attributes
  Primary Days Non-usage  . : NOLIMIT
  Level 1 Days Date/Days  . : NOLIMIT

GDG Management Attributes
  # GDG Elements on Primary :
  Rolled-off GDS Action . . :

Backup Attributes
  Backup frequency  . . . . . . . . . . . . : 0
  Number of backup versions . . . . . . . . :
     (Data Set Exists)
  Number of backup versions . . . . . . . . :
     (Data Set Deleted)
  Retain days only backup version . . . . :
     (Data Set Deleted)
  Retain days extra backup versions . . . :
  Admin or User Command Backup  . . . . . . : NONE
  Auto Backup . . . . . . . . . . . . . . . : NO
  Backup copy technique . . . . . . . . . . : STANDARD

Object Class Transition Criteria
  Time Since Creation Years  :
                      Months :
                      Days . :

  Time Since Last use Years  :
                      Months :
                      Days . :
  Periodic
    Monthly   on Day . . . . :
    Quarterly on Day . . . . :
              in Month . . . :
    Yearly    on Day . . . . :
              in Month . . . :

AGGREGATE Backup Attributes:

    # Versions  . . . . . . . :
    Retain only Version . . . :
      Unit  . . . . . . . . . :
    Retain extra Version  . . :
      Unit  . . . . . . . . . :
    Copy Serialization  . . . :
    ABackup Copy Technique  : STANDAR
```