



| z/TPF V1.1

# TPF Users Group Fall 2008 z/TPF System Generation

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AIM Enterprise Platform Software  
IBM z/Transaction Processing Facility Enterprise Edition 1.1.0

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# Topics

- **In the beginning...**

## In the beginning...

### TPF 4.1 SYSGEN

- Use of JCL to generate FCTB
- Use of JCL to assemble SIP deck. This generates SIP Stage 2.
- Parse and ship SIP Stage 2 JCL to populate correct PDSes. Build all segments

### z/TPF SYSGEN

- Use build tool “bldtpf” to generate FCTB
- Use bldtpf to assemble SIP deck. This creates a shell script called sip.sh
- Sip.sh writes out all the files to necessary directories on linux

# Topics

- **In the beginning...**
- **What's new in the SIP?**

## CORREQ – Memory Configurations

- **Added the capability to define multiple memory configurations**
- **At least one memory configuration **MUST** be defined**
- **Up to eight memory configurations can be defined**
- **Used in the lab to set up various test systems**

## CORREQ - Best Fit Principle

- **z/TPF uses *best-fit* principle to determine which configuration to use**
  - Uses the memory configuration that requires the most amount of storage after meeting the requirements of a minimum amount of both virtual file access (VFA) and 31-bit system heap.
- **ZCTKA PREFER can set a memory configuration that TPF will try to implement first**
- **If none of the memory configurations can be used, a predefined IBM memory configuration is used.**

# CORREQ Example

CORREQ	MMES=20,	max no of 1M frames/ecb in 31bit	X
	XMMES=10,	max no of 1M frames/ecb in 64bit	X
	EMPS=30,	max size of 31 bit Heap(1MB units)t	X
	ESPS=2,	stack size in MB	X
	TRETRY=200,	max no of entries in buffer	X
	EPRIV=4	max size of ECB private area	
CORREQ	MEMCONFIG=IBMLARGE,	DEFINE TEST MEMORY CONFIG	X
	FRM=6200,	NUMBER OF 4K FRAMES	X
	CMB=400,	NUMBER OF 4K COMMON BLOCKS	X
	ECBS=600,	NUMBER OF 12K ECBS	X
	IOB=4450,	NUMBER OF I/O BLOCK	X
	SWB=1750,	NUMBER OF 4K COMMON BLOCKS	X
	FRM1MB=400,	number of 1 megabyte frames	X
	PEH=16,	preallocated ecb heap	X
	HAVL1=64,	ecb heap available list 1	X
	HAVL2=16,	ecb heap available list 2	X
	HAVL3=16,	ecb heap available list 3	X
	HAVL4=2,	ecb heap available list 4	X
	PPA=1,	preallocated EPA	X
	PES=16,	pre-allocated stack	X

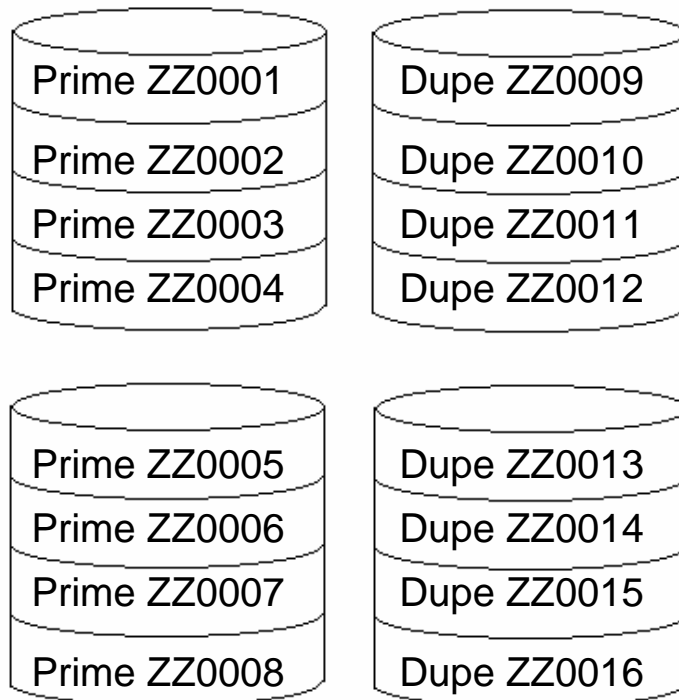
	SHP=20,	PRE-ALLOCATED 31BIT SYSTEM HEAP	X
	SHA=200,	PRE-ALLOCATED 64BIT SYSHEAP AREA	X
	VFAMIN=10,	MINIMUM VFA	X
	VFAMAX=0,	MAXIMUM VFA	X
	DBA=1	dump buffer area	
CORREQ	MEMCONFIG=IBMSMALL,	DEFINE TEST MEMORY CONFIG	X
	FRM=1000,	NUMBER OF 4K FRAMES	X
	CMB=100,	NUMBER OF 4K COMMON BLOCKS	X
	ECBS=50,	NUMBER OF 12K ECBS	X
	IOB=2500,	NUMBER OF I/O BLOCK	X
	SWB=700,	NUMBER OF 4K COMMON BLOCKS	X
	FRM1MB=220,	number of 1 megabyte frames	X
	PEH=1,	preallocated ecb heap	X
	HAVL1=0,	ecb heap available list 1	X
	HAVL2=0,	ecb heap available list 2	X
	HAVL3=0,	ecb heap available list 3	X
	HAVL4=0,	ecb heap available list 4	X
	PPA=1,	preallocated EPA	X
	PES=16,	pre-allocated stack	X
	SHP=12,	PRE-ALLOCATED 31BIT SYSTEM HEAP	X
	SHA=0,	PRE-ALLOCATED 64BIT SYSHEAP AREA	X
	VFAMIN=10,	MINIMUM VFA	X
	VFAMAX=0,	MAXIMUM VFA	



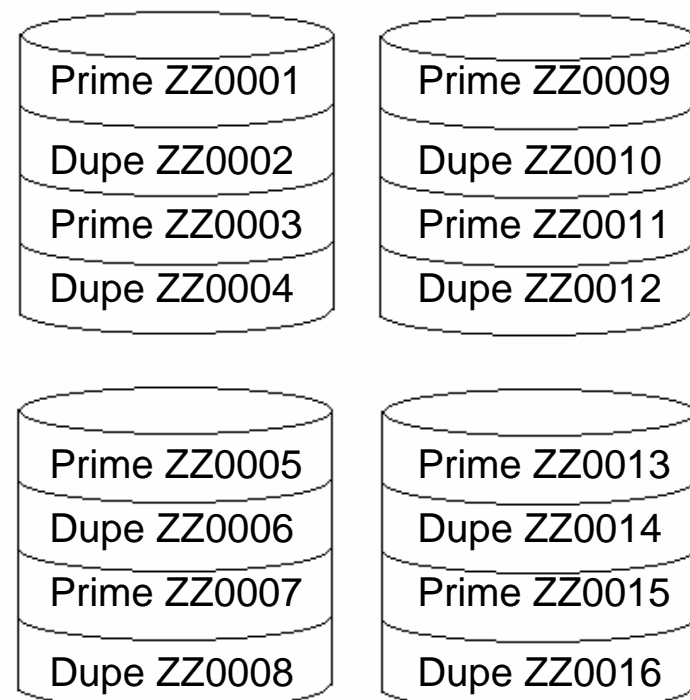
## ONLFIL/DDCCAP/LOGCAP – Even/Odd Module Pairing

- Gives z/TPF the ability to order the DASD modules alternating between prime and dupe modules

### Standard Module Duplication



### Even/Odd Module Duplication



## ONLFIL/DDCCAP/LOGCAP – Even/Odd Module Pairing

- **ONLFIL – Add parameter DUPMP=YES**
- **LOGCAP – For LOG/XCP processing, all but the last dupe mod needs to be specified**
- **DDCCAP – For Capture/Restore all but the last dupe mod needs to be specified**

# ONLFIL/DDCCAP/LOGCAP – Even/Odd Module Pairing

```

*****
*           ONLFIL - ONLINE DEVICE CHARACTERISTICS           *
*****
ONLFIL      DUPMP=Y,      DUP MODULE PAIRING STATUS (Y=prime dupe)      X
            LIRECOVERY=Y,      LOST INTERRUPT RECOVERY                  X
            LOSTINT=10,      LOST INTERRUPT TIMER                      X
            DEVICEA=(3390,3339), TYPE OF DEVICE                        X
            DUPTYPA=F,      DUPLICATION STATUS OF DEVICE              X
            PERMA=20,      NBR OF PERMANENTLY MOUNTED MODULES        X
            IPLABLE=2,      NBR OF IPLABLE MODULES                   X
            VSNCHAR=TX,      ALPHA PORTION OF VSN                     X
            NAMDEVA=DEVA,      X                                      X
            VOLNOA=1,      STARTING VOLUME SERIAL NUMBER              X
            DEVICEB=(3390,3339), TYPE OF DEVICE                        X
            NAMDEVB=DEVB,      X                                      X
            DUPTYPB=F,      DUPLICATION STATUS OF DEVICE              X
            PERMB=64,      NBR OF PERMANENTLY MOUNTED MODULES        X
            VOLNOB=21      STARTING VOLUME SERIAL NUMBER

```

# ONLFIL/DDCCAP/LOGCAP – Even/Odd Module Pairing

```
*****
*           LOGCAP - TAPE CAPTURE PARAMETERS           *
*****
LOGCAP   RTU=(DEVA,0,DEVB,62),   DEV TYPE AND RELATIVE MOD NBR   X
        STAMP=01                INTERVAL IN MINS FOR TIME STAMP

EJECT 1
*

*****
*           DDCCAP - DASD CAPTURE RESTORE PARAMETERS   *
*****
DDCCAP   KPUPA=25,KPUPB=25,                X
        INTAB=0-18,INTBB=0-62

EJECT 1
*
```

# DF Required: Adding DF

- Required 4K DF Records

```
RAMFIL TYPE=4SA,RECNO=00006,RECID=#IDFU4,DUPE=YES,BAND=4053,EQU=316 ZSYSGEN
RAMFIL TYPE=4SA,RECNO=00012,RECID=#IDFC4,DUPE=YES,BAND=4052,EQU=317 ZSYSGEN
RAMFIL TYPE=4SA,RECNO=00200,RECID=#IRCBDF,DUPE=YES,BAND=4051,EQU=318 ZSYSGEN
RAMFIL TYPE=4SA,RECNO=00499,RECID=#IRCFDF,DUPE=YES,BAND=4050,EQU=319 ZSYSGEN
RAMFIL TYPE=4SA,RECNO=00499,RECID=#IRCGDF,DUPE=YES,BAND=4049,EQU=320 ZSYSGEN
RAMFIL TYPE=4SA,RECNO=00032,RECID=#IRCHDF,DUPE=YES,BAND=4048,EQU=321 ZSYSGEN
RAMFIL TYPE=4SA,RECNO=00499,RECID=#IRCIDF,DUPE=YES,BAND=4047,EQU=299 ZSYSGEN
RAMFIL TYPE=4SA,RECNO=00320,RECID=#IRCJDF,DUPE=YES,BAND=4046,EQU=300 ZSYSGEN
RAMFIL TYPE=4SA,RECNO=00200,RECID=#IRCKDF,DUPE=YES,BAND=4045,EQU=207 ZSYSGEN
RAMFIL TYPE=4SA,RECNO=00997,RECID=#IRCMDf,DUPE=YES,BAND=4044,EQU=208 ZSYSGEN
RAMFIL TYPE=4SA,RECNO=00256,RECID=#IRDIDF,DUPE=YES,BAND=4043,EQU=209 ZSYSGEN
RAMFIL TYPE=4SA,RECNO=00010,RECID=#SRHH1P,DUPE=YES,BAND=4037,EQU=301 ZSYSGEN
RAMFIL TYPE=4SA,RECNO=00010,RECID=#SRM31A8,DUPE=YES,BAND=4035,EQU=303 ZSYSGEN
RAMFIL TYPE=4SA,RECNO=00118,RECID=#SRM41A8,DUPE=YES,BAND=4034,EQU=304 ZSYSGEN
RAMFIL TYPE=4SA,RECNO=00010,RECID=#SRM61A8,DUPE=YES,BAND=4032,EQU=306 ZSYSGEN
RAMFIL TYPE=4SA,RECNO=00036,RECID=#DCA0DF,DUPE=YES,BAND=4031,EQU=307 ZSYSGEN
```

# DF Required: Adding DF

- **Required Small DF Records**

```
RAMFIL TYPE=SSA,RECNO=00002,RECID=#IDFUS,DUPE=YES,BAND=4039,EQU=259 ZSYSGEN
RAMFIL TYPE=SSA,RECNO=00003,RECID=#IDFCS,DUPE=YES,BAND=4038,EQU=310 ZSYSGEN
```

- **Required Large DF Records**

```
RAMFIL TYPE=LSA,RECNO=00002,RECID=#IDFCL,DUPE=YES,BAND=4042,EQU=312 ZSYSGEN
RAMFIL TYPE=LSA,RECNO=00010,RECID=#IDFUL,DUPE=YES,BAND=4041,EQU=313 ZSYSGEN
RAMFIL TYPE=LSA,RECNO=00099,RECID=#GR3MSR,DUPE=YES,BAND=4040,EQU=314 ZSYSGEN
RAMFIL TYPE=LSA,RECNO=00120,RECID=#GR0ZSR,DUPE=YES,BAND=4030,EQU=315 ZSYSGEN
```

# DF Init Script

```
ZAREC LIDFUS.0 0 FDF00000C3E5C2C3+
ZAREC LIDFUS.0 8 0000000000000000+
ZAREC LIDFUS.0 10 001A000000000000+
ZAREC LIDFU4.0 0 FDFB0000C3E5C2C3+
ZAREC LIDFU4.0 8 0000000000000000+
ZAREC LIDFU4.0 10 001A000000000000+
ZAREC LIDFU4.1 0 FDF90000C3E5C2C3+
ZAREC LIDFU4.1 8 0000000000000000+
ZAREC LIDFU4.1 10 001A000000000000+
ZAREC LIDFU4.2 0 FDF80000C3E5C2C3+
ZAREC LIDFU4.2 8 0000000000000000+
ZAREC LIDFU4.2 10 001A000000000000+
ZAREC LIDFU4.5 0 FDE60000C3E5C2C3+
ZAREC LIDFU4.5 8 0000000000000000+
ZAREC LIDFU4.5 10 001A000000000000+
```

# DF Init Script

```
ZUDFM INIT FC9A+
ZUDFM INIT FC9A+
ZUDFM INIT FCA0+
ZUDFM INIT FCA0+
ZUDFM INIT FDF4+
ZUDFM INIT FDF4+
ZUDFM INIT FDF3+
ZUDFM INIT FDF3+
ZUDFM INIT FDFD+
ZUDFM INIT FDFD+
ZUDFM INIT FDE4+
ZUDFM INIT FDE4+
ZUDFM INIT FDF7+
ZUDFM INIT FDF7+
ZUDFM INIT FDF5+
ZUDFM INIT FDF5+
ZUDFM INIT FDA5+
ZUDFM INIT FDA5+
ZUDFM INIT FD1C+
ZUDFM INIT FD1C+
```

```
ZUDFM INIT FD1E+
ZUDFM INIT FD1E+
ZUDFM INIT FDDB+
ZUDFM INIT FDDB+
ZUDFM INIT FDD6+
ZUDFM INIT FDD6+
ZUDFM INIT FD1C+
ZUDFM INIT FD1C+
ZUDFM INIT FD1E+
ZUDFM INIT FD1E+
ZUDFM INIT FDD6+
ZUDFM INIT FDD6+
ZUDFM INIT FDDB+
ZUDFM INIT FDDB+
ZUDFM INIT FD1F+
ZUDFM INIT FD1F+
ZUDFM INIT FD1D+
ZUDFM INIT FD1D+
ZUDFM INIT FD16+
ZUDFM INIT FD16+
```

```
ZUDFM INIT FD17+
ZUDFM INIT FD17+
ZUDFM INIT FD18+
ZUDFM INIT FD18+
ZUDFM INIT FD19+
ZUDFM INIT FD19+
ZUDFM INIT FD1A+
ZUDFM INIT FD1A+
ZUDFM INIT FD1B+
ZUDFM INIT FD1B+
ZUDFM INIT FD22+
ZUDFM INIT FD22+
ZUDFM INIT FDEF+
ZUDFM INIT FDEF+
ZUDFM INIT FDDE+
ZUDFM INIT FDDE+
ZUDFM INIT FDDC+
ZUDFM INIT FDDC+
```

```
ZUDFM INIT FDDE+
ZUDFM INIT FDDE+
ZUDFM INIT FDE1+
ZUDFM INIT FDE1+
ZUDFM INIT FDE5+
ZUDFM INIT FDE5+
ZUDFM INIT FDF6+
ZUDFM INIT FDF6+
```



## DF Init Script

- **To add DF to the system:**
  - Add all required records to the facetable
  - Copy/Paste the script above into a file system file and use ZEXEC
- OR
- Copy /Paste the script above into a TPF Operations Server script

# Changed Parameters and Macros

- **Delete the BSCER and SLCER parameters from the CCPERR macro.**
- **Delete the AIDWN, AIRES, BSDWN, and BSRES parameters from the CCPPOL macro.**
- **Update the CONFIG macro as follows:**
  - Delete the CIPHR, TPFDF, and VEQR parameters.
  - If you want to disable NDSP for z/TPF system, NDSP=DISABLE
  - If you want to add Apache code to the z/TPF system, APACHE=YES.
  - If you want to add MYSQL code to the z/TPF system, MYSQL=YES
  - If you want to add LIBCURL code to the z/TPF system, LIBCURL=YES
- **Update the CORREQ macro as follows:**
  - Delete the APSIZ24, APSIZ32, PTV, and SSPS parameters.
  - Code the CORREQ macro with the main storage parameters specified.
  - Code the CORREQ macro again with the memory configuration parameters specified. Update existing parameters to accommodate new working storage needs.

# Changed Parameters and Macros

- **Delete all GENFIL macro calls that specify 3350, 3375, or 9345 for the DEV parameter; these devices are no longer supported.**
- **Update the GENSIP macro as follows:**
  - Add the PDSNAME and TPFROOT parameters.
  - Delete the ANTPDS, ASMALL, ASMSPACE, ASMTYPE, BRELN, CCOMPTP, CFLAG, CLIBPFX, CLNGPFX, CLSRCH, CRUNTIM, CSRCH, EXCJOB, EXPRS, JCL, LINKALL, LISTAPE, OUTCL, PL1LK, PL1SR, REGN, USMAC, USOBJ, USPROC, USRCE, and XREF parameters.
- **Delete the BSCDRPS, BSCLN, BSCOP, PSLNS, and SLCAI parameters from the LINES macro.**
- **Update the RAM macro as follows:**
  - Add the APSIZE31 parameter
  - Delete the ECBNL and NFBACK parameters.

# Changed Parameters and Macros

- **Update the ONLFIL macro as follows:**
  - If you use the prime/duplicate module pairing configuration, specify DUPMP=Y.
  - If you want to use keypoint 6 (CTK6) as a large keypoint to support greater than 3999 DASD, specify CTK6EXP=Y.
  - If you want to enable lost interrupt recovery, specify LIRECOVERY=Y.
- **Delete the DIAG, MAXDP, MAXEP, N2703, and SUBCH parameters from the NETWK macro.**
- **Delete the XCHK parameter from the UTPROT macro.**
- **Delete the BBSAT, BSNCT, INDSN, and SYNCLK macros.**

# Topics

- **In the beginning...**
- **What's new in the SIP?**
- **What's new in the FCTB?**

## Increase these records

- **Increase the size of the following records:**
  - FLOCK/INODE/IZERO: Increased file system usage
  - IPL $n$ : IPL area has grown in size
  - IRCMDF: For better hashing in DF
  - OLD $n$ /XPRG $n$ /PROG $n$ : Programs are larger in z
  - KSA $n$ : Keypoint staging area increase for keypoint E
  - KBA: Keypoint backup area increase for keypoint E

# Increase in # of XPRGs

- **APRG records are no longer used in z/TPF. Debug information now is stored in the file system instead of fixed file records.**
- **Size of load module has increased approximately 7 times. Number of XPRGs will need to be increased. If your application is loaded, the required number located in LGF**

```
*****
***** SUMMARY REPORT *****
*****
```

Status of DEFINE Flags:

SYSID=BSS

IMGCLEAR=NO

WARN\_BSO\_RELO=NO

THE FOLLOWING PAT WAS USED FOR VERIFICATION

/home/linuxbin/ztpf/base/load/IPAT.so

This load will require 39526 #XPRG records.

# New Records

## The following areas require new records:

- Format 2 Globals
- 48K Keypoints
  - Keypoint staging areas
  - Keypoint backup areas
- Message Router
- Debugger Dump Control
- IPAT



# New Records

- **IPAT Records**

- readelf -S ipat\_path\_name to determine size of IPAT
- Size of IPAT/4097: the number of records allocated for new IPAT record
- IPAT records are image unique

**RAMFIL TYPE=4SA,RECNO=##### ,RECID=#IPATn,DUPE=YES**

- **Debugger Dump Viewer Records**

- Number dependent on how many dumps you are keeping on the processor

**RAMFIL TYPE=4SA,RECNO=##### ,RECID=#DBGDUMP,DUPE=YES**

- **Message Router Record**

**RAMFIL TYPE=LSA,RECNO=00012,RECID=#RCAT5,DUPE=YES**

# New 4K Records

- **Recoup Lost Address Processing**

- $(\# \text{Lost addresses in Recoup run}) / 254 * 1.10\%$
- 254 is the number of file addresses in one ordinal

```
RAMFIL TYPE=4SA,RECNO=##### ,RECID=#IBMLOST ,DUPE=YES
```

- **SCRT Reporting Tool**

```
RAMFIL TYPE=4SA,RECNO=0000005 ,RECID=#IBMSCRT ,DUPE=YES
```

- **Keypoint Pointer/Control Records**

```
RAMFIL TYPE=4SA,RECNO=000000027 ,RECID=#KPTCTL ,DUPE=YES
```

```
RAMFIL TYPE=4SA,RECNO=000000012 ,RECID=#KPCTL ,DUPE=YES
```

# New 4K Records

- **48K Keypoint Records**

RAMFIL TYPE=4SA,RECNO=000000012,RECID=#CTKA,DUPE=YES

RAMFIL TYPE=4SA,RECNO=000000012,RECID=#CTKD,DUPE=YES

RAMFIL TYPE=4SA,RECNO=000000012,RECID=#CTK0,DUPE=YES

RAMFIL TYPE=4SA,RECNO=000000012,RECID=#CTK2,DUPE=YES

RAMFIL TYPE=4SA,RECNO=000000012,RECID=#CTK3,DUPE=YES

RAMFIL TYPE=4SA,RECNO=000000012,RECID=#CTK6,DUPE=YES

- **48K LGF Keypoint Records**

RAMFIL TYPE=4SA,RECNO=000000012,RECID=#CTKALGF,DUPE=YES

RAMFIL TYPE=4SA,RECNO=000000012,RECID=#CTKDLGF,DUPE=YES

RAMFIL TYPE=4SA,RECNO=000000012,RECID=#CTK0LGF,DUPE=YES

RAMFIL TYPE=4SA,RECNO=000000012,RECID=#CTK2LGF,DUPE=YES

RAMFIL TYPE=4SA,RECNO=000000012,RECID=#CTK3LGF,DUPE=YES

RAMFIL TYPE=4SA,RECNO=000000012,RECID=#CTK6LGF,DUPE=YES

# New 4K Records

- **48K Keypoint Staging Area**

RAMFIL TYPE=4SA,RECNO=000000012,RECID=#CTKai,DUPE=YES

RAMFIL TYPE=4SA,RECNO=000000012,RECID=#CTKdi,DUPE=YES

RAMFIL TYPE=4SA,RECNO=000000012,RECID=#CTK0i,DUPE=YES

RAMFIL TYPE=4SA,RECNO=000000012,RECID=#CTK2i,DUPE=YES

RAMFIL TYPE=4SA,RECNO=000000012,RECID=#CTK3i,DUPE=YES

RAMFIL TYPE=4SA,RECNO=000000012,RECID=#CTK6i,DUPE=YES

- **48K Keypoint Backup Area**

RAMFIL TYPE=4SA,RECNO=000000012,RECID=#CTKAB,DUPE=YES

RAMFIL TYPE=4SA,RECNO=000000012,RECID=#CTKDB,DUPE=YES

RAMFIL TYPE=4SA,RECNO=000000012,RECID=#CTK0B,DUPE=YES

RAMFIL TYPE=4SA,RECNO=000000012,RECID=#CTK2B,DUPE=YES

RAMFIL TYPE=4SA,RECNO=000000012,RECID=#CTK3B,DUPE=YES

RAMFIL TYPE=4SA,RECNO=000000012,RECID=#CTK6B,DUPE=YES

RAMFIL TYPE=4SA,RECNO=000000049,RECID=#KLGFBFA,DUPE=YES

i = image unique

# New 4K Records

- **New Format 2 Global Records**

```
RAMFIL TYPE=4SA,RECNO=xxxxxxxx,RECID=#IF2GCR,DUPE=YES
RAMFIL TYPE=4SA,RECNO=xxxxxxxx,RECID=#IF2AGCR,DUPE=YES
RAMFIL TYPE=4SA,RECNO=xxxxxxxx,RECID=#IF2A,DUPE=YES
RAMFIL TYPE=4SA,RECNO=xxxxxxxx,RECID=#IF2AP,DUPE=YES
RAMFIL TYPE=4SA,RECNO=xxxxxxxx,RECID=#IF2AI,DUPE=YES
RAMFIL TYPE=4SA,RECNO=xxxxxxxx,RECID=#IF2APS,DUPE=YES
RAMFIL TYPE=4SA,RECNO=xxxxxxxx,RECID=#IF2APSI,DUPE=YES
RAMFIL TYPE=4SA,RECNO=xxxxxxxx,RECID=#IF2AS,DUPE=YES
RAMFIL TYPE=4SA,RECNO=xxxxxxxx,RECID=#IF2ASI,DUPE=YES
RAMFIL TYPE=4SA,RECNO=xxxxxxxx,RECID=#IF2G,DUPE=YES
RAMFIL TYPE=4SA,RECNO=xxxxxxxx,RECID=#IF2GI,DUPE=YES
RAMFIL TYPE=4SA,RECNO=xxxxxxxx,RECID=#IF2GP,DUPE=YES
RAMFIL TYPE=4SA,RECNO=xxxxxxxx,RECID=#IF2GPS,DUPE=YES
RAMFIL TYPE=4SA,RECNO=xxxxxxxx,RECID=#IF2GPSI,DUPE=YES
RAMFIL TYPE=4SA,RECNO=xxxxxxxx,RECID=#IF2GS,DUPE=YES
RAMFIL TYPE=4SA,RECNO=xxxxxxxx,RECID=#IF2GSI,DUPE=YES
RAMFIL TYPE=4SA,RECNO=xxxxxxxx,RECID=#IF2GPI,DUPE=YES
RAMFIL TYPE=4SA,RECNO=xxxxxxxx,RECID=#IF2GP,DUPE=YES
```

P = processor unique

I = istream unique

S = subsystem unique

# Questions and Answers

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