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z/OS Version 1 Release 5 ServerPac Enhancements



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eNetwork	DFSMS/MVS	IMS	RACF
geoManager	DFSMSdfp	IMS/ESA	RMF
AD/Cycle	DFSMSdss	IP PrintWay	RS/6000
ADSTAR	DFSMSshm	IPDS	S/390
AFP	DFSMSrmm	Language Environment	S/390 Parallel Enterprise Server
APL2	DFSORT	Multiprise	SecureWay
APPN	Enterprise System 3090	MQSeries	StorWatch
BookManger	Enterprise System 4381	MVS/ESA	Sysplex Timer
BookMaster	Enterprise System 9000	Network Station	System/390
C/370	ES/3090	NetSpool	SystemView
CallPath	ES/4381	OfficeVision/MVS	SOM
CICS	ES/9000	Open Class	SOMobjects
CICS/ESA	ESA/390	OpenEdition	SP
CICS/MVS	ESCON	OS/2	VisualAge
CICSPlex	First Failure Support Technology	OS/390	VisualGen
COBOL/370	FLowMark	Parallel Sysplex	VisualLift
DataPropagator	FFST	Print Services Facility	VTAM
DisplayWrite	GDDM	PrintWay	WebSphere
DB2	ImagePlus	ProductPac	3090
DB2 Universal Database	Intelligent Miner	PR/SM	3890/XP
DFSMS/MVS	IBM	QMFr	z/OS
			z/OS.e

Domino (Lotus Development Corporation)
DFS (Transarc Corporation)
Java (Sun Microsystems, Inc.)
Lotus (Lotus Development Corporation)

Tivoli (Tivoli Systems Inc.)
Tivoli Management Framework
(Tivoli Systems Inc.)
Tivoli Manger (Tivoli Systems Inc.)

UNIX (X/Open Company Limited)
Windows (Microsoft Corporation)
Windows NT (Microsoft Corporation)

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ServerPac Enhancements



- ☐ Automatic block sizes
- ☐ CustomPac dialog panel changes
- ☐ zFS support
- ☐ Large volume support
- ☐ Service tapes
- ☐ Usability enhancements

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Automatic Block Size Setting



- ☐ ALLOCDS job uses DCB BLKSIZE=0 for most data sets (system-determined block size)
 - 32760 for RECFM=U data sets
- ☐ Data set space allocated using block allocation units
 - Exception made for unblockable data sets
- ☐ Dialog space displays are changed to show tracks or percentage of the volume size - depends on panel
- ☐ Data set block sizes are not shown in the dialogs
 - Exception made for user defined data sets
- ☐ The CHange OPTIBLOCK command is removed
 - Block sizes are automatically set

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HFS of zFS Data Sets



- ❑ You can choose whether each filesystem is to be an HFS or a zFS:
 - On the data set attributes panels
 - With the new CHange DSNTYPE command
- ❑ Exception: The root file system must be an HFS
- ❑ New data set types in the installation dialog:
 - HFS, zFS, PDS, PDSE, SEQ, and VSAM

```

>---+--- CHANGE ---+---+--- DSNTYPE ---+---+--- PDS PDSE ---+---<
|      |      |      |      |
+--- CH -----+ +--- TYPE -----+ +--- PDSE PDS ---+
      |      |      |
      +--- T -----+ +--- HFS ZFS -----+
                  |      |
                  +--- ZFS HFS -----+
    
```

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Set Data Set Type



```

CPPP605D ----- Modify System Layout ( R0150026 ) -----
COMMAND ==> _
    
```

Data Set Modification - Attributes

```

Data set Name ==> OMVSZ15.RL000006.OMVS.ETC
Shipped       : OMVS.ETC

Placement     : C          (DLIB, Target, Catalog, or User-Defined)

Data Set Type ==> HFS      (HFS, PDS, PDSE, SEQ, VSAM, or ZFS)
Shipped       : HFS

SMS-Managed  ==> NO       (Yes or No)
SMS-Eligible  : YES
SMS-Required  : NO

Logical Volume ==> HLB002  Shipped   : CAT001
Physical Volume : T6Z5H1
Storage Class  :
    
```

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HFS versus zFS



- ❑ HFS data set vs. VSAM LDS (aggregate) for zFS
- ❑ zFS aggregate must be preformatted
- ❑ Different FILESYSTYPES used in BPXPRMxx
 - FILESYSTYPE TYPE(ZFS) ENTRYPOINT(IOEFSCM) ASNAME(ZFS)
- ❑ Different operands on MOUNT command
- ❑ Different security system setup
- ❑ VSAM vs. NONVSAM catalog entry
- ❑ CICS, DB2, and IMS ServerPacs assume that any necessary zFS setup has been done

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ServerPac Changes if using zFS



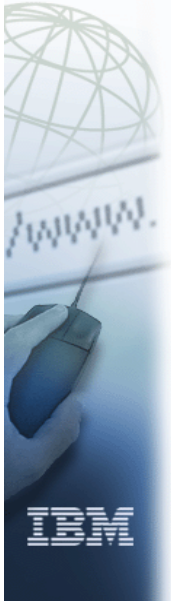
- ❑ ALLOCDS job formats zFS data sets you define
- ❑ RACFDRV and RACFTGT Jobs in z/OS orders:
 - Add group for DFS setup
 - Add user ID for ZFS address space
- ❑ RESTFS Job:
 - Uses appropriate TYPE on MOUNT commands depending on filesystem type
 - Puts appropriate TYPE on MOUNT parameters in BPXPRMFS
 - Add FILESYSTYPE for zFS to BPXPRMFS if needed

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z/OS Version 1 Release 5 ServerPac Large Volume Support



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Large Volume Support Overview



- ☐ What is a "large" volume
- ☐ How big is a "volume" these days?
- ☐ Automatic VTOC and index sizing
- ☐ On/Off Switch for dynamic discovery
- ☐ Dynamic DASD Information
- ☐ More reserved space
- ☐ Updated panels and commands (ServerPac)
- ☐ JES2 update



10017 Cyl

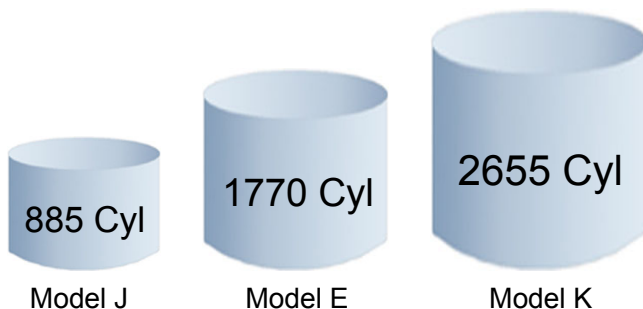
3390-9

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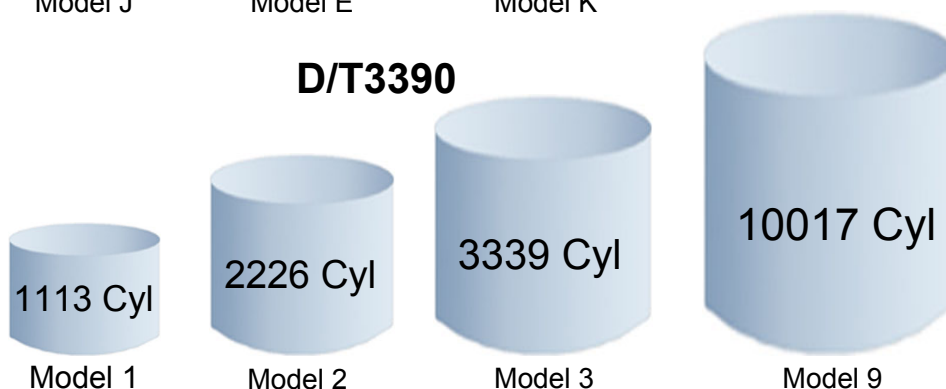
DASD Capacity



D/T3380



D/T3390



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Large Volume Support



- ❑ A "large volume" is larger than a 3390-9
- ❑ The largest possible volume has 32760 (3390) cylinders
- ❑ That would be a "3390-27" if it had its own device type

➤ Almost 28GB



3390-27

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Large Volume Support DYNAMIC DASD INFO



- ❑ When you INIT a DASD volume to be a large volume
 - And if you do it in advance and the volume is online, the system can be asked by ServerPac all about the device
- ❑ But ServerPac needs to know whether to ask
 - So the new DYNAMIC DASD INFO variable is used for this purpose
 - YES | NO are the options
 - If you change the setting to NO, the dialog acts like it did before

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Large Volume Support DYNAMIC DASD INFO



```
CPPP6111  ----- Installation Variables ( R0150026 ) -- Row 1 to 20 of 68
COMMAND ==> _                                SCROLL ==> PAGE

Variable Selection List                                SHOW( -C      )

Primary Commands:(? SET Locate Find Next Previous CANCEL SAVE SHOW VARname)
Line Commands:(Browse Delete Edit Insert Repeat Ship)

S      Synonym          STA Contents
-----
==> INSTALL OPTIONS
    DYNAMIC DASD INFO    P  YES  ◀

==> GEN SYSTEMPAC
    WORK VOLUME          D  SYSDA
    TARGET VOLSER        M D  T6Z5R1
    SMPTLIB PREFIX       M D  SMP
    SMPTLIB UNIT         M D  3390
    SMPTLIB VOLSER       M D  T6Z5S1

==> HFS/ZFS INFO
    INSTALL DIRECTORY    M D  /servils1_z15
```

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Large Volume Support Device Type Table



❑ DASDs that are defined to the dialog

- Includes user-defined devices if any
- You cannot edit or delete IBM-supplied devices in list
- You can add entries for real or emulated devices
 - You can edit or delete those entries
 - Use insert action character (i) to add user defined device,

CPPP606# ----- Device Type Table ----- Row 1 to 15 of 15
COMMAND ==> SCROLL ==> HALF

Primary Commands: (? SET Locate Find Next Previous SORT)
Line Commands: (Select Delete Insert)

DEvice Type	UNIT Type	BYTES/ Track	TRacks/ Cylinder	CYLinders/ Volume	VTOC TRKS	Index TRKS	How Defined
D001-001	D001	65536	19	17206	399	80	DYNAMIC
3380-1	3380	47476	15	885	30	6	IBM
3380-2	3380	47476	15	1770	45	9	IBM
3380-3	3380	47476	15	2665	60	12	IBM
3390-001	3390	56664	15	7206	184	33	DYNAMIC
3390-1	3390	56664	15	1113	30	6	IBM
3390-2	3390	56664	15	2226	60	12	IBM
3390-3	3390	56664	15	3339	75	15	IBM
3390-8	3390	56664	15	6678	150	30	USER
3390-9	3390	56664	15	10017	225	45	IBM
9345-1	9345	46456	15	1440	45	9	IBM
9345-2	9345	46456	15	2156	60	12	IBM

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Large Volume Support VTOC and Index Size



❑ More reserved space

- Reserved Space field on panels allowed 999 cyls to be reserved on a volume - 3% of a 32760 cyl volume
 - Now, Reserved Space input fields are 5 digits
- Displays of Reserved Space shows:
 - A percentage of volume size; or,
 - Number of reserved cylinders

❑ Automatic VTOC and index sizing

- Now calculated by the dialog
- Each is set to a percentage of the volume's size
 - 1 track for every 45 cylinders
 - Index size is set to about 1/5 the VTOC size

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Large Volume Support Automatic Data Set Assignment



- ☐ This is the first panel in the Recommended System Layout option - Since there are a lot of potential device types now, the dialog is changed so you can specify either of the following:

```
CPPP625B ----- Automatic Data Set Assignment ( R0150026 ) -----  
OPTION ==> _
```

- A - ALL** Assign all target and DLIB data sets in the configuration to physical volumes automatically. This option creates a recommended system layout.
- N - NEW** Add new data sets to an existing configuration. This option automatically assigns new data sets, but preserves the placement of previously-assigned data sets in your saved configuration.
- P - PARTIAL** Assign new data sets and reassign some existing data sets to physical volumes. This option automatically assigns all new data sets to physical volumes, as well as data sets from selected volumes in the saved configuration.

Enter EITHER a default device type OR a model volume below:

```
Default Device Type ==> 3390-3      (For example, 3390-3)  
Model after Volume ==>             (For example, Z0SRES)
```

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Large Volume Support Automatic Data Set Assignment



- ☐ **Model volume:** When you specify a model volume, the dialog retrieves the characteristics of the volume's device and uses them if any new volumes need to be created. This lets you avoid defining devices if you are using non-IBM DASD or user-defined volume sizes before using the automatic data set assignment function in the dialog
- ☐ **Default device type:** The default device or model-after volume serial you enter is stored in your ISPF profile data set (ISPPROF). So, everyone can have their own default device type. This is especially handy if different people use different volume sizes for subsystem volumes than for z/OS volumes

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ServerPac Pre-RECEIVED Service



- ☐ Eliminated service tapes from ServerPac
- ☐ All service is RECEIVED and loaded to your new SMPPTS data set
 - The SMPPTS is compacted
 - Allocated with approximately 10-15% free space.
- ☐ Place the SMPPTS data set on a volume where it has room to extend
 - Or allocate a SMPPTS spill data set(s) if you plan to RECEIVE a lot of service before applying and accepting the service that is already received

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SMPPTS Spill Support



- ☐ You create a DDDEF of SMPPTS1 (and bigger numbers if you want them) in the GLOBAL, TARGET, and DLIB zones
 - When SMP/E fills SMPPTS it looks for SMPPTS1, SMPPTS2, and so forth

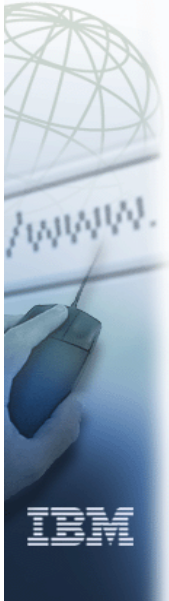
```
Menu Options View Utilities Compilers Help
DSLIST - Data Sets Matching ZOSR06.SMPPTS* Row 1 of 2
Command ==> Scroll ==> PAGE
Command - Enter "/" to select action Tracks %Used XT Device
-----
ZOSR06.SMPPTS 40112 99 24 3390
ZOSR06.SMPPTS1 49950 3 1 3390
***** End of Data Set list *****
```

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z/OS Version 1 Release 6 ServerPac Enhancements



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ServerPac Enhancements V1R6



- ☐ Electronic Delivery
- ☐ Improved processing for tape delivered orders
- ☐ Reduction of the number of installation jobs
- ☐ Process orders in any sequence
- ☐ More data collection
- ☐ Eliminate un-necessary data entry
- ☐ Improved job statement handling
- ☐ Automatic reallocation of SCCPWORK data sets
- ☐ New and better SMP/E options entries
- ☐ RECEIVE dialog panel overview

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Electronic Delivery of Orders



- ❑ Installation dialogs can now process electronically delivered orders
 - This eliminates the requirement for tape processing
 - Improvements in the internet infrastructure make electronic delivery a more practical alternative to tape delivered orders
- ❑ Hardware requirements
 - ICSF component of the Cryptographic services
 - Needed to download a ServerPac order
 - Uses the SMP/E GIMGTPKG utility for ICSFs SHA-1 hashing
 - Verify that the downloaded files are intact

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Electronic Delivery Process



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System Requirements



- ☐ z/OS R3
- ☐ z/OS R4 or higher to download direct to the z/OS system through a firewall using Network Address Translation (NAT)
 - With APAR PQ80281 (PTF UQ82394 or UQ82395)
- ☐ SMP/E 3.3 - Provides the new GIMGTPKG utility used to download the packages
- ☐ ICSF - SHA-1 provides a hashing algorithm to compare the hash value generated at IBM with the one generated on your system and assures that what you receive is what was sent
- ☐ Communications Server IP set up for Secure FTP (FTPS) using Transport Layer Security (TLS)
- ☐ RACF set up to support key rings used for Secure FTP with TLS

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ShopzSeries Website



- ☐ All ordering for electronic delivery of ServerPac is done using the ShopzSeries website, at:
- ☐ The CustomPac Installation Dialog did not provide coexistence support prior to z/OS V1R6
 - Allowed to display orders from a prior dialog levels, but not install them
- ☐ Now, the level of the dialog shipped with a ServerPac is always used to install it
 - ServerPac can be installed in any order, no matter when they were built.
 - The dialog upgrade is non disruptive even when the installation of other orders is in progress.

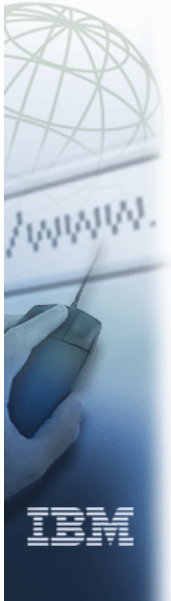
<https://www14.software.ibm.com/webapp/ShopzSeries/ShopzSeries.jsp>

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z/OS Version 1 Release 5 and Release 6 Update 64-bit Virtual Storage Enhancements

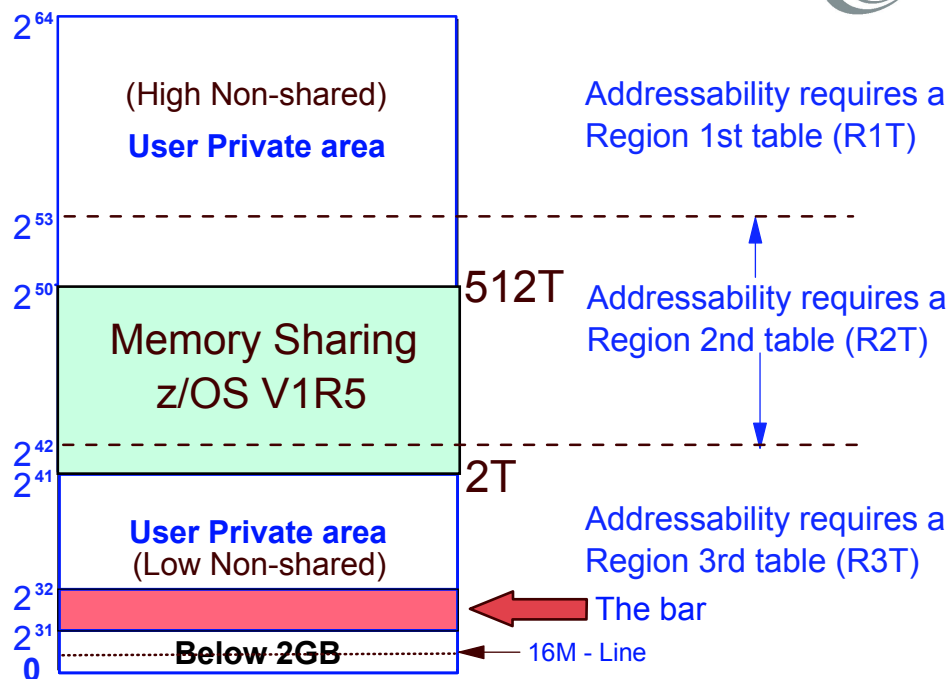


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z/OS Address Space Map



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z/OS V1R5 Enhancements



- ❑ With z/OS V1R5, the following enhancements for 64-bit virtual storage have been added:
 - 64-bit shared memory addressing area between 2 terabytes and 512 terabytes
 - Multiple guard area support for private high virtual storage above the bar

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Memory Objects



- ❑ z/OS virtual memory above 2GB is organized as
 - Memory objects
- ❑ Memory objects are a contiguous range of virtual addresses created by a program
 - Allocated as a number of 1 MB chunks of storage starting on a 1MB boundary
 - Some of the memory is usable virtual storage.
 - Remainder is not valid and is called the guard area (can be zero)
 - The extent of the usable virtual can be changed, with a compensatory change in the extent of the guard area
- ❑ Shared Memory Object
 - No Guard Area support

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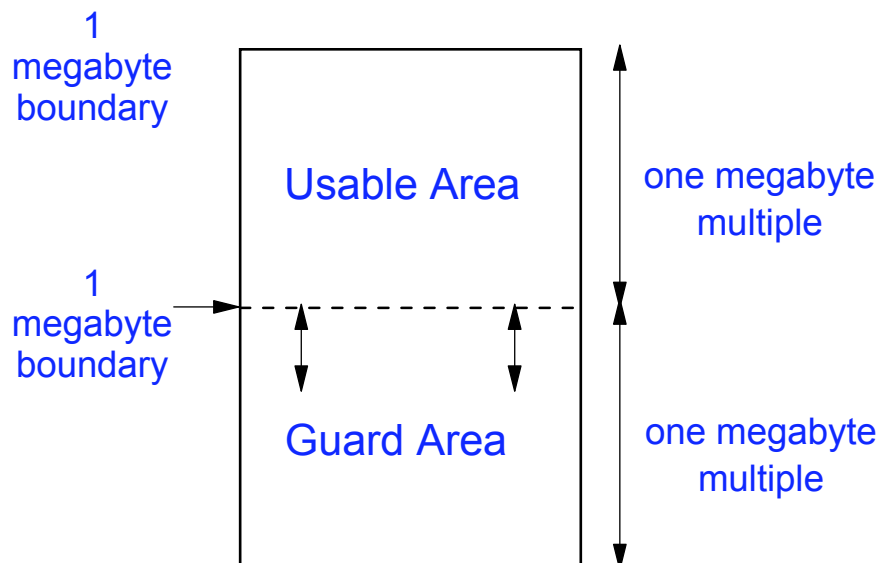
Basic Memory Object Properties



- ❑ A memory object is allocated by a single request and can only be freed in its entirety - Partial freeing is not allowed
- ❑ It has a single storage protection key and fetch protection attribute - z/OS virtual memory above 2GB is organized as memory objects which programs create
- ❑ Private Memory Object
 - It is owned by a task
- ❑ Shared Memory Object
 - It is shared at the same address in every address space
 - It is owned by the system

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Memory Objects



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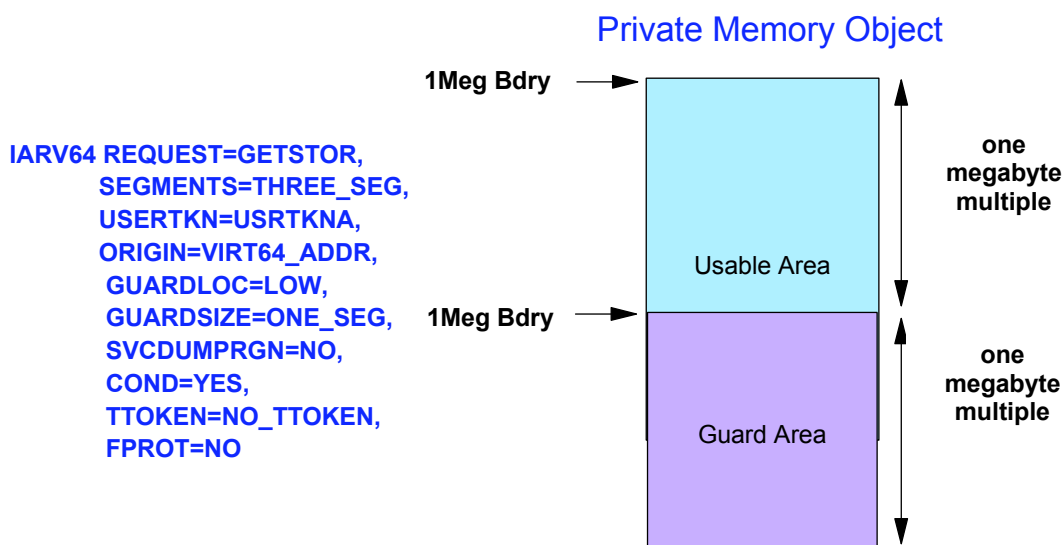
Managing Memory Objects - IARV64



- ❑ **Getstor** - create a Memory Object (only for private memory objects)
- ❑ **Changeguard** - increase or decrease the amount of usable memory in a memory object (only for private memory objects)
- ❑ **Getshared** - Create a Shared Memory Object (only for shared memory objects)
- ❑ **Sharememobj** - Allows an address space to access Shared Memory Objects (only for shared memory objects)
- ❑ **Changeaccess** - Manages the type of access an address space has to the Shared Virtual Storage (only for shared memory objects)
- ❑ **Detach** - delete Memory Objects

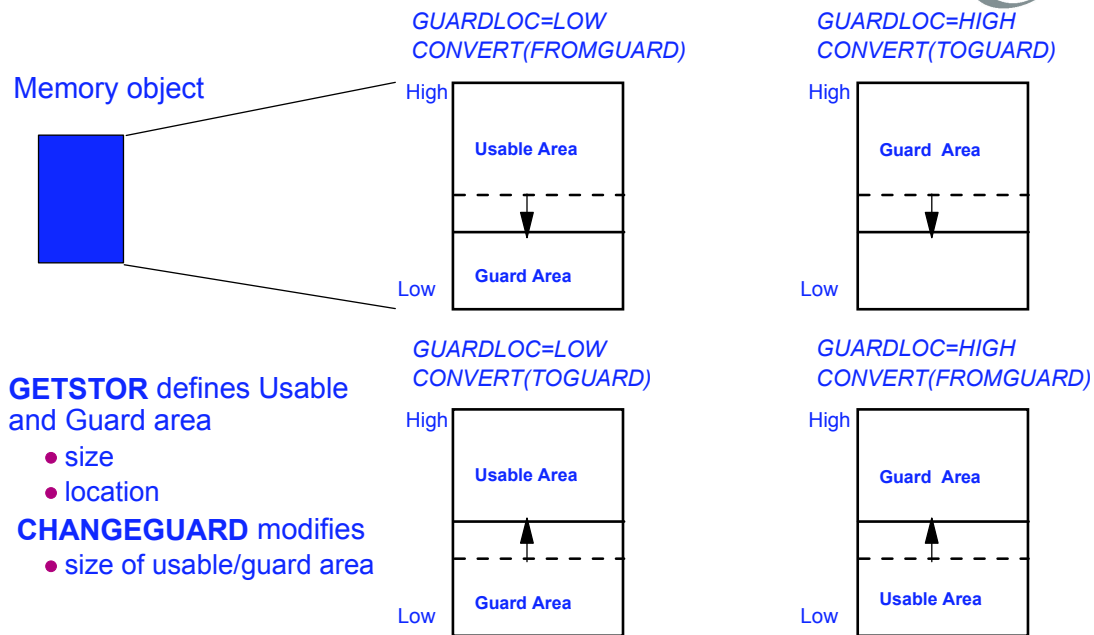
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Guard Area Support



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Changing the Amount of Usable Memory



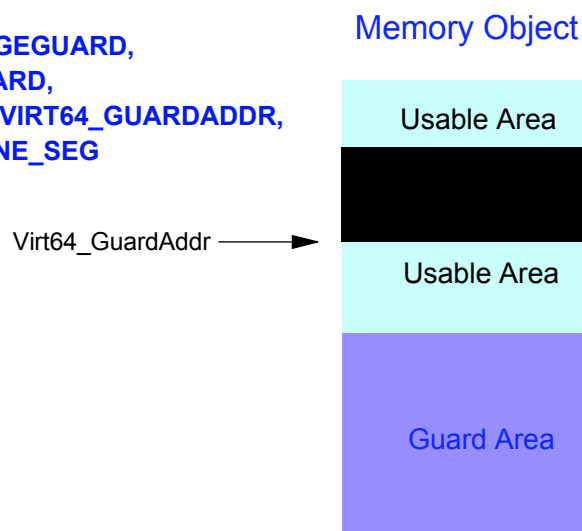
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Create a Guard Area in Usable Area



Multiple Guard Area Support

IARV64 REQUEST=CHANGE GUARD,
CONVERT=TO GUARD,
CONVERTSTART=VIRT64_GUARDADDR,
CONVERTSIZE=ONE_SEG



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Increase Size of Usable Area



Multiple Guard Area Support

Memory Object

```
IARV64 REQUEST=CHANGEGUARD,  
CONVERT=FROMGUARD,  
CONVERTSTART=VIRT64_GUARDADDR,  
CONVERTSIZE=ONE_SEG
```



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Controlling Virtual usage



- ❑ An installation wants to limit the maximum physical memory resources (real and auxiliary) that can be committed by a job
- ❑ For virtual below 2GB, a limit on virtual storage usage provides (indirectly) a way to limit real and auxiliary storage use by a job
 - The REGION= keyword on JCL and can be overridden by the IEFUSI installation exit

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Virtual above the Bar



- ❑ No practical limit to the amount of virtual address range that an address space can request
- ❑ Provide a limit on the amount of usable virtual storage above 2GB that an address space can use at any one time
- ❑ The limit is 0 unless specified through either:
 - The new SMF MEMLIMIT parameter, or
 - The new MEMLIMIT keyword on JCL, and
 - Can be overridden by an IEFUSI exit

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Support for Virtual Above the Bar



- ❑ Why use Virtual Storage above the bar?
 - 64-bit virtual storage provides applications/middleware with:
 - Enhanced data caching capacity
 - Simplified memory management
 - Support for private storage above the bar was delivered in z/OS 1.2
- ❑ Z/OS 1.5 has the following enhancements for 64-Bit:
 - 64-Bit Shared Memory support
 - Multiple guard area support for private virtual storage above the bar

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Using Shared Virtual Storage



- ❑ New options on the IARV64 macro allow address spaces to share storage above the bar
- ❑ Shared Area size can be specified via the HVSHARE keyword in IEASYSxx, or system parms
 - HVSHARE=xxxxxxxxxxxG, or xxxxxxxxxxxT, or xxxxxxP
 - Default shared area starts at 2TB and ends at 512TB
 - Minimum size is zero, max size is 1 Exabyte
- ❑ Note: A shared memory object has no guard area

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Display Use of Shared Storage



- ❑ **DISPLAY VIRTSTOR,HVSHARE or D VS,HVSHARE** command
 - Displays the shared area range and how much 64-bit shared virtual storage has been allocated in the system

In z/Architecture mode

```
IAR019I hh.mm.ss DISPLAY VIRTSTOR
SOURCE = XX | (OP) | DEFAULT
TOTAL SHARED = nnnnnnnnnnnG
SHARED RANGE = nnnnG-nnnnnnnnnnnG
SHARED ALLOCATED = nnnnnnnnnnnnnM
```

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Controlling Storage - MEMLIMIT



- ❑ Through JCL on the specific job with the new
 - MEMLIMIT JCL keyword
- ❑ MEMLIMIT specified on a JOB statement
 -
 - //TC2 JOB MEMLIMIT=125M,TIME=NOLIMIT
 - //TC3 JOB MEMLIMIT= 9T,MSGLEVEL=1
 - //TC4 JOB REGION=3M,MEMLIMIT=16384P
 - //TC5 JOB REGION=125M,MSGLEVEL=(1,1),
 - MEMLIMIT=NOLIMIT,MSGCLASS=A
- ❑ MEMLIMIT specified on an EXEC statement
 - //STEP1 EXEC PGM=TST6,MEMLIMIT=6400M
 - //STEP1 EXEC PGM=TST7,MEMLIMIT=3P...
 - //STEP1 EXEC MYPROC,MEMLIMIT=NOLIMIT...

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Controlling storage - SMFPRMxx



```
ACTIVE                /*ACTIVE SMF RECORDING*/
DSNAME ( SYS1.MANA,SYS1.MANB,SYS1.MANC) /* NEW D.S. ADDED 11/88 */
PROMPT(LIST)          /*PROMPT THE OPERATOR FOR OPTIONS*/
REC(PERM)              /*TYPE 17 PERM RECORDS ONLY*/
BUFNUM(4,9)           /* 4 - 4096 BUFFERS ALWAYS AND
                        ALLOW UP TO 9 BEFORE SUSPENDING
                        A USER FOR BUFFER SHORTAGE*/
MAXDORM(3000)         /* WRITE AN IDLE BUFFER AFTER 30 MIN*/
MEMLIMIT(24G)
STATUS(010000)        /* WRITE SMF STATS AFTER 1 HOUR*/
JWT(1439)              /* NO 522 ABENDS*/
SID(168A)              /* SYSTEM ID IS 168 A*/
LISTDSN               /* LIST DATA SET STATUS AT IPL*/
SYS(TYPE(0:255),EXITS(IEFACTRT,IEFUJV,IEFUSI,IEFU83,
IEFUJI,IEFUTL,IEFU29),NOINTERVAL,NODETAIL)
```

MEMLIMIT(16384P) /* This is the same as NOLIMIT */

MEMLIMIT(125T)

MEMLIMIT(4000P)

MEMLIMIT(0M) /* Disallow storage >2G */

MEMLIMIT(00000M) /* DEFAULT */

Other examples of MEMLIMIT

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MEMLIMIT During the IPL



```
SYS(TYPE(0:255)) -- DEFAULT
LISTDSN -- DEFAULT
SID(4381) -- DEFAULT
STATUS(010000) -- DEFAULT
MAXDORM(3000) -- DEFAULT
DDCONS(YES) -- DEFAULT
LASTDS(MSG) -- DEFAULT
NOBUFFS(MSG) -- DEFAULT
SYNCVAL(00) -- DEFAULT
INTVAL(30) -- DEFAULT
DUMPABND(RETRY) -- DEFAULT
REC(PERM) -- DEFAULT
DSNAME(SYS1.MANY) -- DEFAULT
DSNAME(SYS1.MANX) -- DEFAULT
MEMLIMIT(NOLIMIT) -- PARMLIB
JWT(1439) -- PARMLIB
PROMPT(ALL) -- PARMLIB
NOACTIVE -- PARMLIB
*01 IEE357A REPLY WITH SMF VALUES OR U
00- r 1, MEMLIMIT(2G)
    IEE600I REPLY TO 01 IS; MEMLIMIT(2G)
*02 IEE357A REPLY WITH SMF VALUES OR U
```

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Reset the SMF Parameters



SET SMF=M4

```
IEE252I MEMBER SMFPRMM4 FOUND IN
RSMID.PARMLIB
IEE536I SMF    VALUE M4 NOW IN EFFECT
D SMF,O
IEE967I 00.56.34 SMF PARAMETERS 379
    MEMBER = SMFPRMM4
    DSNAME(SYS1.MANY) -- DEFAULT
    DSNAME(SYS1.MANX) -- DEFAULT
    ACTIVE -- DEFAULT
MEMLIMIT(00003G) -- PARMLIB
JWT(2400) -- PARMLIB
PROMPT(ALL) -- PARMLIB
```

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Change MEMLIMIT Value



setsmf memlimit(120t)

IEE712I SETSMF PROCESSING COMPLETE

d smf,o

IEE967I 01.29.56 SMF PARAMETERS

MEMBER = SMFPRMBR

MEMLIMIT(00120T) -- REPLY

PROMPT(ALL) -- PARMLIB

DDCONS(YES) -- DEFAULT

LASTDS(MSG) -- DEFAULT

NOBUFFS(MSG) -- DEFAULT

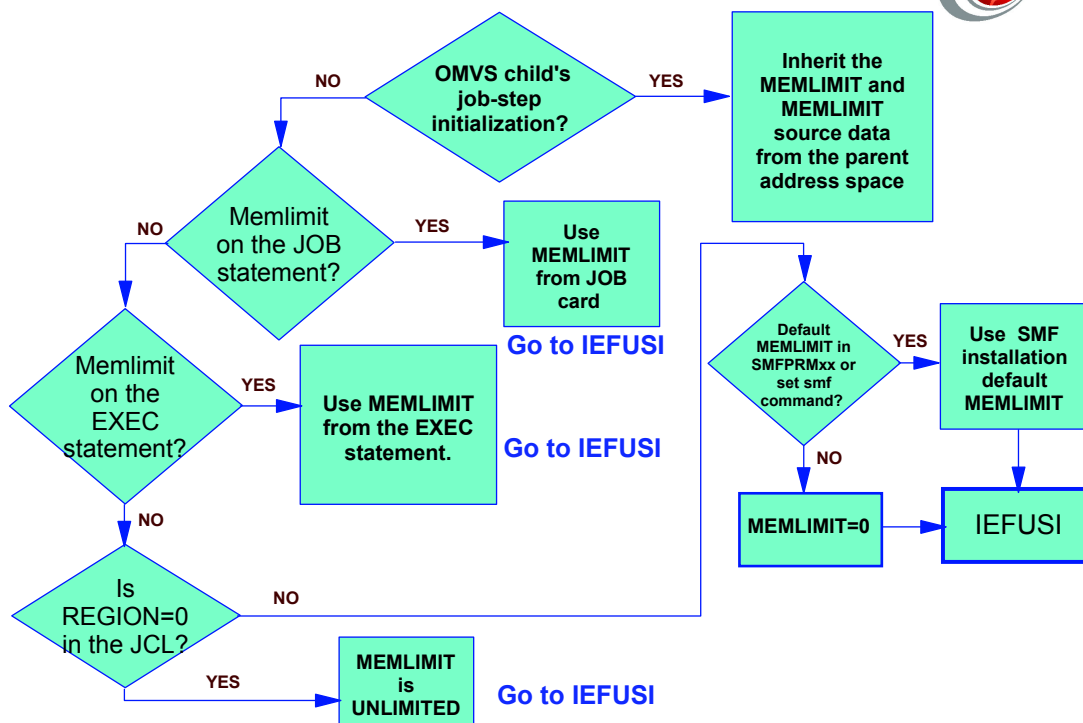
SYNCVAL(00) -- DEFAULT

INTVAL(30) -- DEFAULT

DUMPABND(RETRY) -- DEFAULT

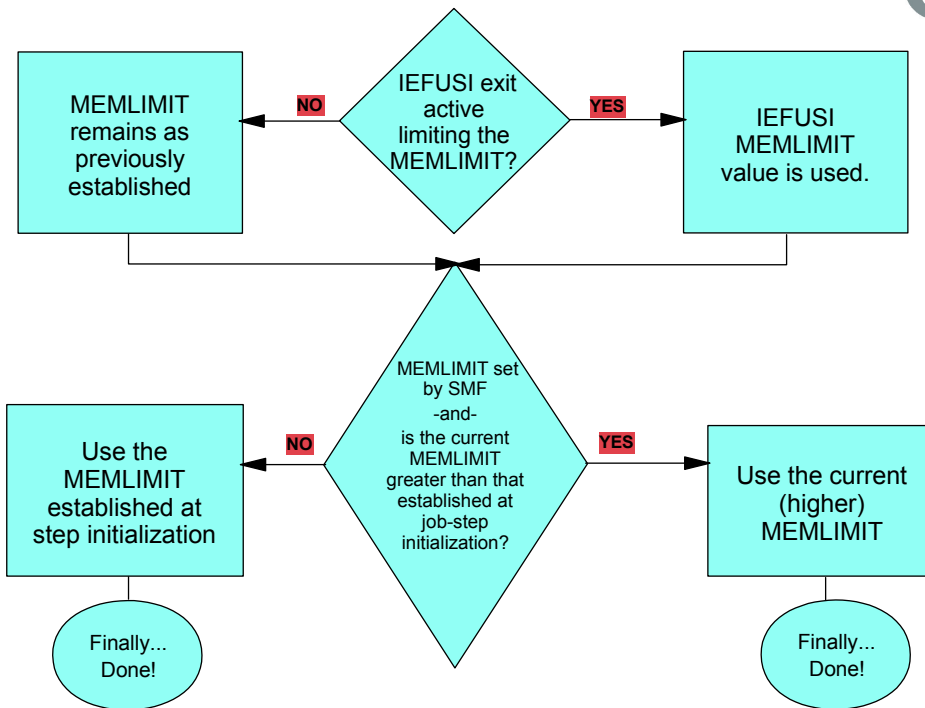
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Determine MEMLIMIT for Jobstep



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IEFUSI Exit



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Language Environment 64-bit Support



- ❑ Language Environment creates a separate 64-bit run-time environment to allow programs to address storage above the 2G Bar
 - The support is for C/C++ (and Assembler) only
 - Access data above the 2G Bar
 - Allocate large data areas (even those in excess of 2G)
 - More easily port applications from other 64-bit platforms
- ❑ Benefits of support
 - Consolidation of data within a single address space (especially for databases and large buffer pools)
 - Manipulating large amounts data within storage

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z/OS 1.6 C/C++ Enhancements



- ❑ The main objective of this compiler release is to generate programs that will exploit the 64-bit architecture
- ❑ The 64-bit capability can benefit programs that need to process a large amount of data as internal arrays
 - The data can be read into working buffer and manipulated in memory without using temporary files, simplifying program logic
 - Debug information is also enhanced to handle 64-bit programs

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WLM 64-bit Virtual Storage Support



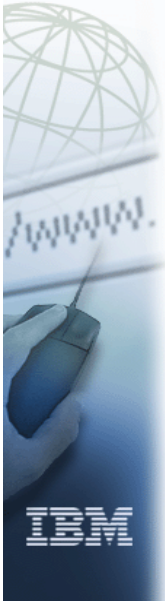
- ❑ The main objective of this compiler release is to generate programs that will exploit the 64-bit architecture
- ❑ The 64-bit capability can benefit programs that need to process a large amount of data as internal arrays
 - The data can be read into working buffer and manipulated in memory without using temporary files, simplifying program logic
 - Debug information is also enhanced to handle 64-bit programs

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Workload Manager (WLM) z/OS V1 R5



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INITIMP Parmlib Member



- ☐ **INITIMP=0**
 - The dispatch priority is set to the dispatch priority of service class SYSSTC. This is the default, and the functional equivalent of what took place prior to z/OS V1R5. The initiator dispatching priority is set to 254.
- ☐ **INITIMP=1**
 - The dispatch priority is set lower than the lowest dispatch priority for any CPU-critical service class with an importance of one.
- ☐ **INITIMP=2**
 - The dispatch priority is set lower than the lowest dispatch priority for any CPU-critical service class with an importance of two.
- ☐ **INITIMP=3**
 - The dispatch priority is set lower than the lowest dispatch priority for any CPU-critical service class with an importance of three.
- ☐ **INITIMP=E**
 - The dispatch priority is set to the enqueue promotion dispatch priority, which is calculated dynamically and ensures access to the processor. This does not guarantee that cpu-critical work will always have a higher dispatch priority, but it should not be negatively impacted.

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INITIMP Example 1



- ❑ One service class defined with CPU critical - Importance 1
- ❑ INITIMP tells that initiator DP always has to be lower than CPU critical and Importance 2 work
- ❑ As a result all work for Online always has a higher DP than all other initiators before job execution
- ❑ All other work also has a lower DP than Online

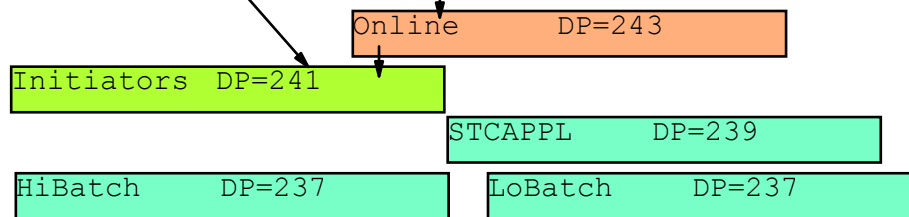
IEAOPTxx

INITIMP=2

Service Policy

Service Class	Importance	CPU Critical
Online	1	Yes
STCAPPL	2	No
HiBatch	3	No
LoBatch	4	No

Result



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INITIMP Example 2



- ❑ One service class defined with CPU critical - importance 2
- ❑ INITIMP tells that initiator DP always has to be lower than cpu critical and importance 2 work
- ❑ As a result Initiators will always be below STCAPPL
- ❑ Online work may have any dispatch priority, below and above STCAPPL and initiators

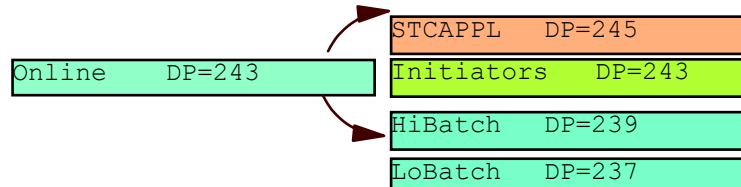
IEAOPTxx

INITIMP=2

Service Policy

Service Class	Importance	CPU Critical
Online	1	No
STCAPPL	2	Yes
HiBatch	3	No
LoBatch	4	No

Result

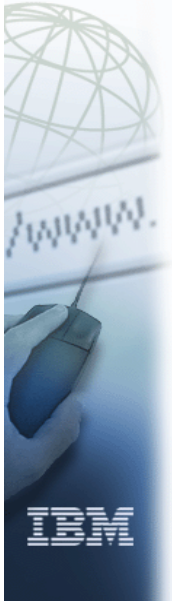


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SMP/E Version 3 Release 2 z/OS V1 R5



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SMP/E V3R2 with z/OS V1R5



- ☐ A smaller SMPLTS data set
- ☐ The LINK LMODS command
- ☐ The UPGRADE command
- ☐ Java Archive (JAR) update support
- ☐ ShopzSeries data collection
- ☐ SMPCSI allocation sample
- ☐ SYSDEFSD (side deck library) DUMMY support
- ☐ Internet package extensions

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SMP/E Primary Option Menu



TUTORIAL
OPTION ==> _

What is New in SMP/E Version 3 Release 2

TUTORIAL

The following is a summary of the enhancements and changes that have been incorporated in SMP/E Version 3 Release 2. Detailed information can be found in the SMP/E manuals. Select a topic number or press ENTER to view the topics in sequence.

More: +

Significant Changes:

- 1 - A smaller SMPLTS data set
- 2 - LINK LMODS to replace the REPORT CALLLIBS command
- 3 - The UPGRADE command
- 4 - Java Archive (JAR) update support

SMP/E Dialog Changes:

- 5 - New SETTINGS option to configure the SMP/E dialogs

Miscellaneous Changes:

- 6 - Side Deck Library DUMMY Support
- 7 - GIMZIP package extensions
- 8 - New data collection routine for ShopzSeries (GIMXSID)
- 9 - SYSLIB allocated only when needed for assemblies

Migration Considerations:

- 10 - The UPGRADE command
- 11 - Removal of GIMUTTBL, GIMDFUT and GIM@UPRM

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LINK LMODS Command



☐ LINK LMODS command takes the place of the REPORT CALLLIBS command

- The LINK LMODS command may also be used to relink specific load modules that do not contain CALLLIBS, rebuilding them from scratch, if necessary
- It provides all the functionality of the REPORT CALLLIBS command with some additional benefits. LINK LMODS is used to link edit any load module. Load modules may be specified individually by name or like the REPORT CALLLIBS command, by reference to a particular CALLLIBS ddname. Once the load modules are identified, LINK LMODS will find copies of each module included in the load modules and will then directly link edit load modules into their target libraries, just like APPLY and RESTORE.
- LINK LMODS even has a CHECK mode so you can see what it will do before it actually does it, and it can attempt recovery from an out-of-space condition by compressing the the target library and trying the link edit operation again.

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Examples of the LINK LMODS Command



```
SET BOUNDARY(tzone).  
LINK LMODS CALLLIBS(SCEELKED)  
  RETRY(YES)  
  CHECK.
```

```
SET BOUNDARY(tzone).  
LINK LMODS CALLLIBS(lmodname)  
  RETRY(YES)  
  CHECK.
```

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UPGRADE Command



- ❑ New SMP/E functions sometimes force incompatible changes to SMP/E zones and data sets
 - In the past such changes were made automatically, without warning
 - Afterward the zone was not useable by previous release levels of SMP/E
 - For example, extended subentry values can not be processed by SMP/E releases not updated to do so (such as long LINK values)

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Example of the UPGRADE Command



- ❑ Sets an “upgrade level” for a zone which becomes the highest SMP/E release level allowed to make incompatible changes to the zone

```
SET BDY(TGT) .  
  UPGRADE.  
  LIST TARGETZONE.
```

```
TGT      ZONE ENTRIES
```

```
TGT      TZONE      = TGT  
          UPGLEVEL   = SMP/E  32.02  
          RELATED    = DLIB  
          SREL        = Z038
```

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ShopzSeries Data Collection

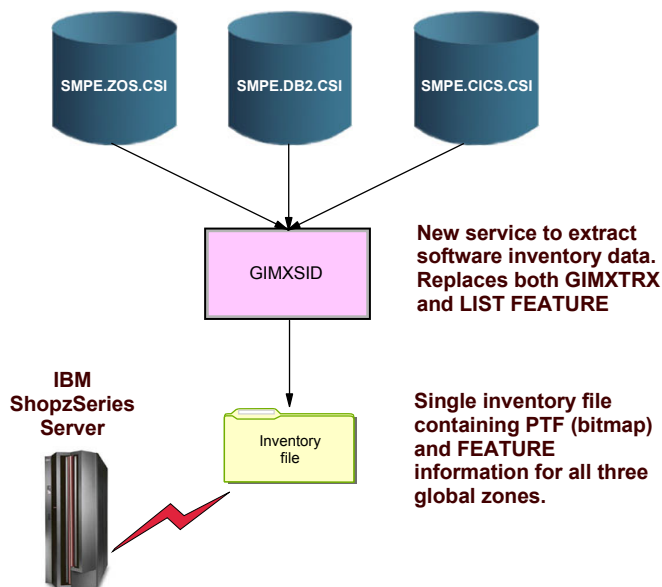


Send Inventory file to ShopzSeries

- ❑ New data collection routine is GIMXSID, which does the following:

- Collects both PTF and FEATURE data in one step and stores in one inventory file
- The inventory file can be written directly to a file in the UNIX file system as well as sequential and partitioned data sets

- ❑ Supports multiple global zones



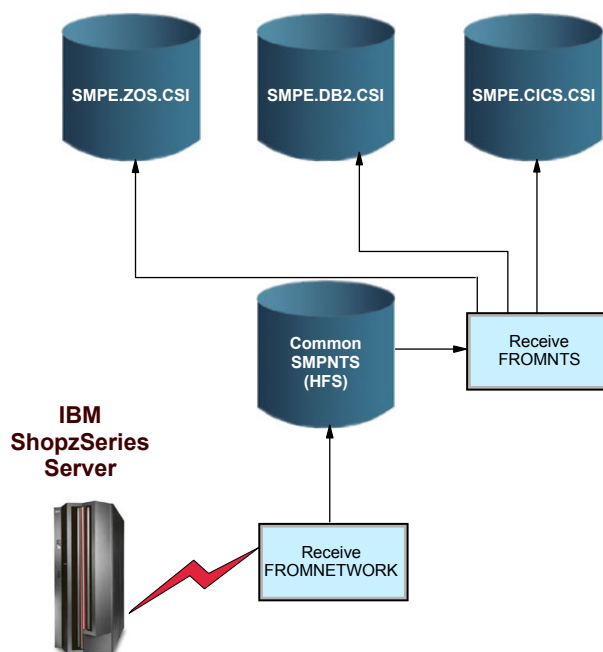
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Process for RECEIVE of Internet Order



RECEIVE an internet order for multiple global zone

- The first operation uses RECEIVE FROMNETWORK to transfer the order into a common SMPNTS
- Subsequent operations use RECEIVE FROMNTS to use the order stored in the common SMPNTS



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Internet ServerPac Order (/u/pp .. list)



Received into the HFS

[File](#) [Directory](#) [Special_file](#) [Commands](#) [Help](#)

Directory List

Select one or more files with / or action codes. If / is used also select an action from the action bar otherwise your default action will be used. Select with S to use your default action. Cursor select can also be used for quick navigation. See help for details.

EUID=0 /u/pp/PP160023.CONTENT/

Row 145 of 941

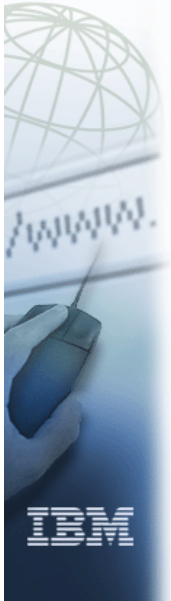
Type	Filename
File	S0141.CPPUNLD.RP160023.SYS1.ADGTTSRC.pax.Z
File	S0142.CPPUNLD.RP160023.SYS1.ADMSSVM.pax.Z
File	S0143.CPPUNLD.RP160023.NETVIEW.ADSIMSG1.pax.Z
File	S0144.CPPUNLD.RP160023.NETVIEW.ADSIOPEN.pax.Z
File	S0145.CPPUNLD.RP160023.NETVIEW.ADSIPARM.pax.Z
File	S0146.CPPUNLD.RP160023.NETVIEW.ADSIPRF.pax.Z
File	S0147.CPPUNLD.RP160023.NETVIEW.ADUIMSG1.pax.Z
File	S0148.CPPUNLD.RP160023.CEE.AEDCCPP1.pax.Z
File	S0149.CPPUNLD.RP160023.CEE.AEDCHFS.pax.Z
File	S0150.CPPUNLD.RP160023.CEE.AEDCMOD1.pax.Z
File	S0151.CPPUNLD.RP160023.CEE.AEDCMOD2.pax.Z
File	S0152.CPPUNLD.RP160023.CEE.AEDCMSEP.pax.Z
File	S0153.CPPUNLD.RP160023.CEE.AEDCOBJ1.pax.Z

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Console Restructure, One-Byte ID Tracker and System Console Availability



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Multisystem Consoles in a Sysplex



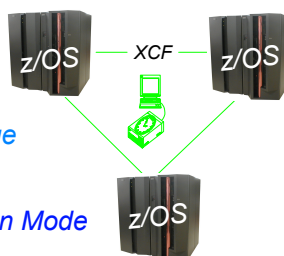
H/W Integrated Console



One per image

System Console

- IPL
- Problem Determination Mode
- (NIP Console)



MCS Console

(Non-SNA)



Max 99 in a sysplex

- Master Console
- Status Display Console
- MCS Message Stream Console
- (NIP Console)
- (SUBSYSTEM)

MCS and EMCS Consoles:

- ▶ Can be active on any system in a sysplex
- ▶ Can operate any system in a sysplex
- ▶ Can receive messages from any system in a sysplex
- ▶ Can have alternates on any system(s) in the sysplex

Extended MCS Console



MCSOPER
MCSOPMSG
MGCRE

Number unlimited

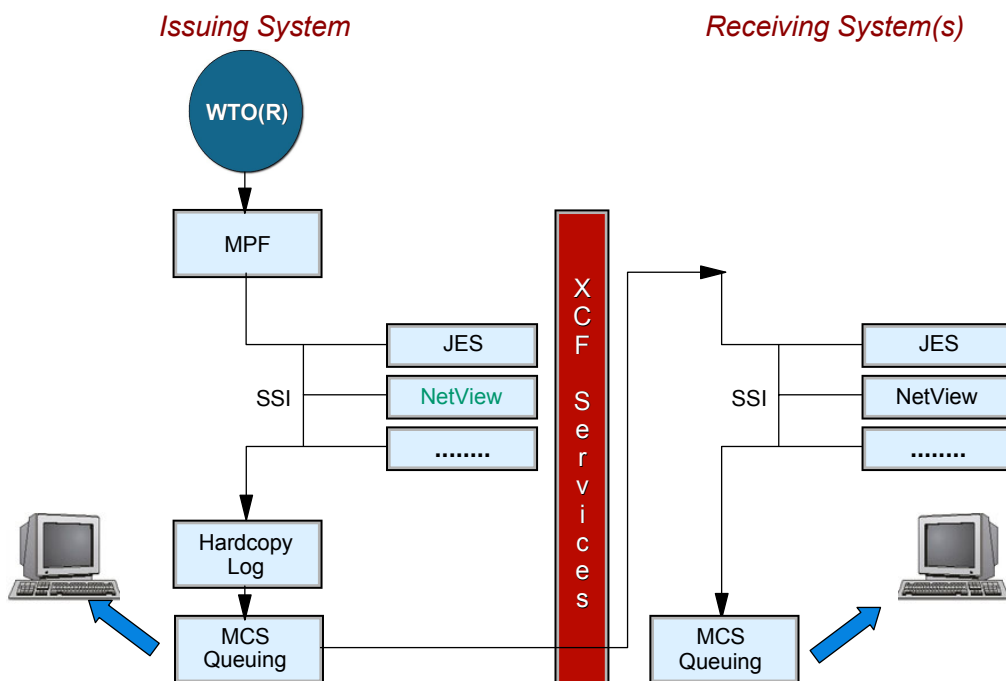
- Programmable
- Full function console
- TSO/E
- NetView
- SDSF

MCS Sysplex Features:

- ▶ Sysplex wide AMRF
- ▶ Reply IDs are unique in a sysplex (range 99 - 9999)
- ▶ CPF, CMDSYS and ROUTE command for command routing
- ▶ MSCOPE for console message screening by system

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Message Flow in a Sysplex



Reasons for Console Restructure



- ❑ Problems seen with current console implementation
 - Runaway application can kill a system
 - Large systems can overwhelm small systems
 - All queuing decisions are made from a single task
- ❑ Prone to backups and storage overloads
 - Traffic to a particular console
 - SYSLOG
 - Un-ended multiline WTOs
- ❑ Inflated importance on a single message
 - Delivery of all messages considered the overriding responsibility
- ❑ Inflated importance of MCS consoles

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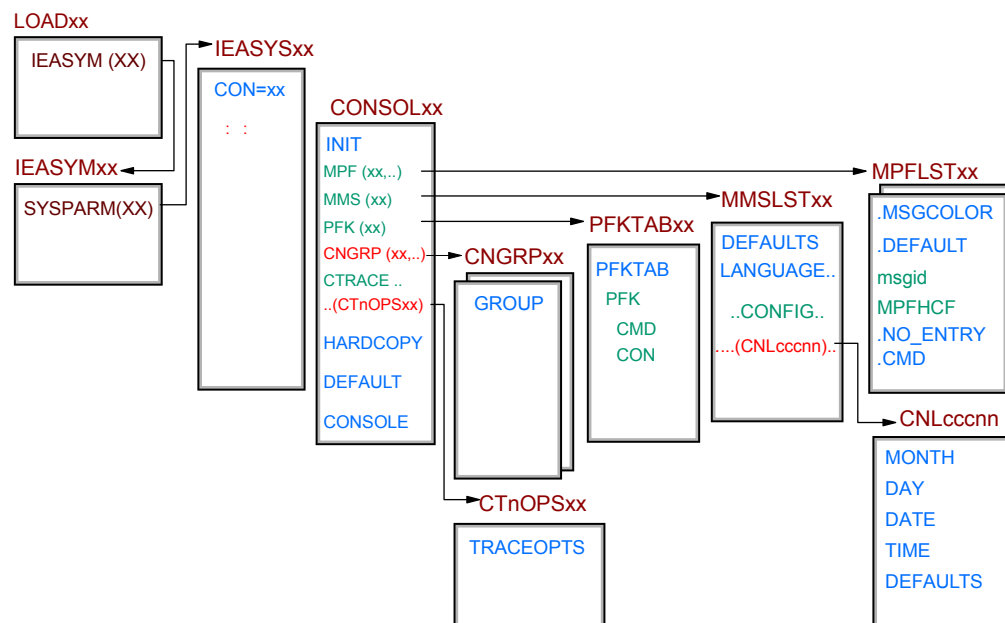
Consoles Restructure Components



- ❑ Console restructure - Console availability enhancements
 - Runaway application can kill a system
 - Large systems can overwhelm small systems
 - All queuing decisions are made from a single task
- ❑ System console availability
- ❑ One-byte ID tracker

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Console Related Parmlib Members



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CONSOLxx - CONSOLE Statement



Receiving messages not explicitly routed to it

```
MSCOPE {(sysname*[,sysname]...) }  
        {(*ALL) }
```

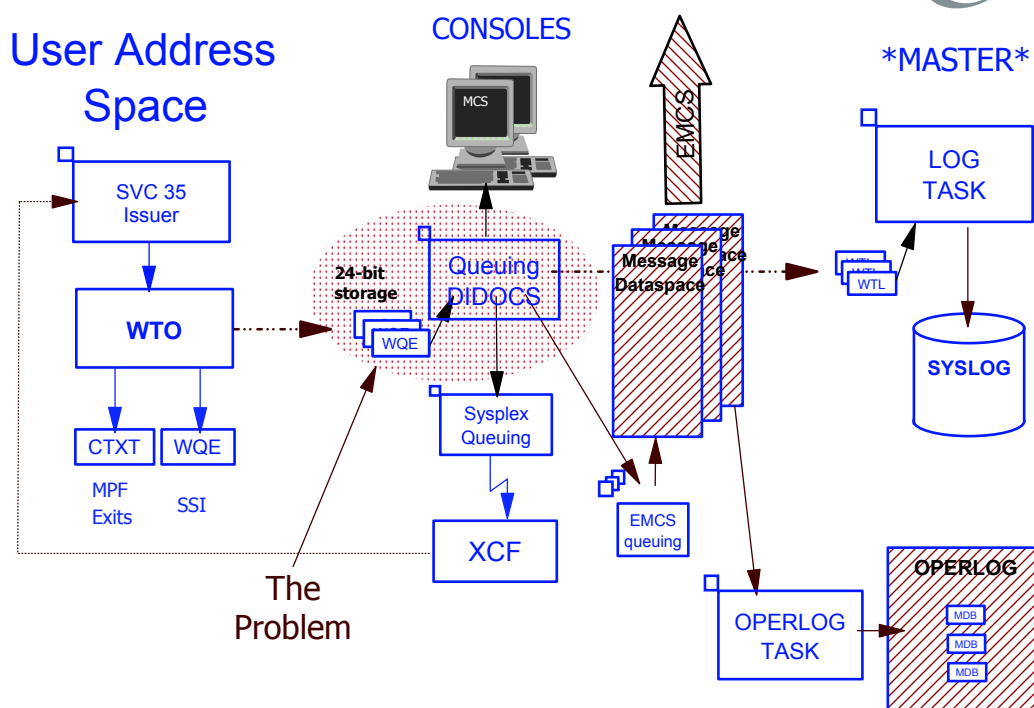
If a console has *ALL or multiple sysnames

```
VARY CN(ROGERS),MSCOPE=SC50
```

The MSCOPE of the system console now defaults to * instead of *ALL (**Console restructure**)

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Message Processing before Restructure



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Console Restructure Design Changes



- ❑ Eliminate outages due to a flood of WTOs or DOMs
 - Reduce reliance on one main task
 - Message cache data space
 - Queuing independence
 - Deliver message to syslog/operlog from caller's unit of work
 - Do not queue MLWTOs for delivery until message is complete

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Multi-line Message Changes



- ❑ Multi-line messages that are built dynamically using CONNECT processing will be held in a dataspace until complete
 - Not queued to a console or hardcopy until completed
 - Each line sent to message exits and SSI as issued
 - Un-ended messages will be ended at EOT or after a period of inactivity
 - MTRACE is performed for each line as it arrives

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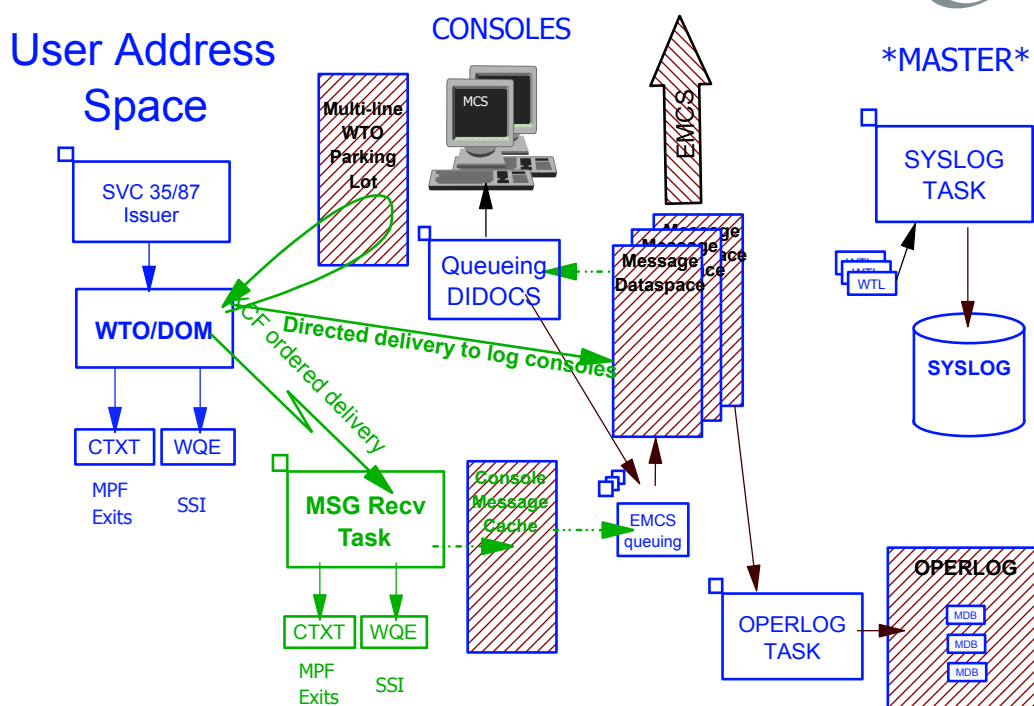
Console Restructure Design Changes



- ❑ System/Sysplex is more important than any message
- ❑ Lose messages to maintain healthy (message will still go to hardcopy and possibly some targets)
- ❑ Provide means to avoid effects of fast producer / slow consumers
- ❑ Remove reliance on a single task for queuing decisions
- ❑ Do more processing under the SVC 35 (WTO) and SVC 87 (DOM) issuers thread
- ❑ Use updated XCF services for transport
- ❑ Eliminate effects of poorly behaved issuers of multiline WTOs

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Message Processing after Restructure



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Console Externals Deleted



- ❑ **HARDCOPY** statement in **CONSOLxx**

- **devnum** deleted

```
HARDCOPY  DEVNUM  {(devnum)           }  
                {(SYSLOG)             }  
                {(OPERLOG)            }  
                {(devnum,OPERLOG)}  
                {(SYSLOG,OPERLOG)}
```

Hardcopy can only be directed to SYSLOG and/or OPERLOG

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Console Externals Deleted



- ❑ The **HCPYGRP** keyword on the **HARDCOPY** statement in **CONSOLxx** is no longer accepted
- ❑ The **R=** parameter on the **CONTROL Q** command is no longer supported
 - Can no longer redirect backed up messages to another console

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System Console Availability



- ❑ System Console Availability is a RAS item
- ❑ **Provide an automated way to indicate when the system console should be in PD mode to handle operator instructions**
- ❑ SMCS consoles cannot be activated until VTAM or TCPIP is active
 - z/OS V1R1 introduced SMCS consoles as an alternative to MCS consoles
- ❑ System consoles do not normally run in a full function mode (PD mode)
 - A command (V CN(console),ACTIVATE) is required to enter this mode
- ❑ In the gap between NIP and VTAM/TCPIP activation there are no 'ready' consoles.

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System Console Availability Problem



- ❑ Currently, installations that wish to eliminate their MCS consoles are faced with the following problem
 - System IPLed with System Console
 - After NIP, System Console is not in PD-MODE
 - Messages may have been lost
 - Manual operator intervention required to get into PD-mode
 - After operator's console is activated system console must be manually removed from PD-mode

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System Console Availability Solution



- ❑ System console availability can be achieved through the definition of a console group in PARMLIB
 - `CONSOLE DEVNUM(SYSCONS)`
 - `AUTOACT(groupname)`
- ❑ System console will automatically be placed in PD-mode if none of the consoles in the group are active
- ❑ System console is automatically removed from PD-MODE when any of the consoles in the group are active

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System Console Changes



- ❑ Utilizing console restructure
 - The function is integral to running the operating system
- ❑ Utilizing system console availability - **AUTOACT**
 - Create a group in CNGRPxx parmlib member containing the consoles which can "replace" the system console
 - Specify `AUTOACT(groupname)` on the `CONSOLE` statement in `CONSOLxx` for the system console
 - Alternatively, the group can be activated dynamically through the use of the:
 - `SET CNGRP` and
 - `V CN(syscons),AUTOACT` commands

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Console Externals Changes



- ❑ The **ALTERNATE** keyword on the **CONSOLE** statement no longer accepted
 - Must use **ALTGRP** for specifying back-up consoles
- ❑ **Undelivered messages (UD)** are no longer detected
 - **UD** keyword on the **CONSOLE** and **HARDCOPY** statements in **CONSOLxx** is no longer accepted
 - **UD** keyword no longer supported on the **VARY CONSOLE** and **VARY HARDCPY** commands

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One-byte Console ID Overview



- ❑ Future enhancements to the consoles components will require a redefinition of the console id field
- ❑ In **z/OS V1R7** the one-byte console id will no longer be valid
- ❑ To aid in finding and eliminating users of one-byte console ids a service has been created.
 - Tracks 1-byte users on: **WTO**, **MPF**, **SSI**, **MGCR/MGCRE**, **CONVCON**, **MCSOPER**
 - Allows hooks into the same infrastructure for customers/vendors to track users of 1-byte console ids in their code

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One-byte Console ID Solution



- ❑ Service is provided to detect and record instances of one-byte id usage
 - Command interface to activate / deactivate the service and to display the list of uses
- ❑ Programmable Interface is provided for customers and vendors to track usages in other interfaces
 - Requires hooks into existing code

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Utilizing One-byte ID Tracker



- ❑ To track other instances of 1-byte console ids
 - Initialize the CNZTRPL parameter list
 - Includes data that describes what is being tracked
 - Includes the 'bad' console id being used
- ❑ To track usages on the console component interfaces
 - Operator command to control the activation of the service SETCON
TRACKING=ON/ONWITHABEND/OFF
 - Display 'violators' via the following command
 - **DISPLAY OPDATA,TRACKING**
 - Known instances can be ignored through the specification of CNIDTRxx member in SYS1.PARMLIB.
 - Invoke the CNZTRKR service, passing the CNZTRPL parameter list

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D OPDATA,TRACKING command



CNZ1001I 10.53.40 TRACKING DISPLAY

```

STATUS=ON,ABEND NUM=08    MAX=1000 MEM=n/a EXCL=0    REJECT=0
----TRACKING INFORMATION---- -VALUE--  JOBNAME  PROGNAME+OFF--  ASID  NUM
Parmlib Reader: ADYSET00          00 *MASTER* ADYSETP   1BD8   01   1
Parmlib Reader: COFVLF04          00 VLF        COFMINIT   2EFE   18   1
Parmlib Reader: IEFSSN00          00 *MASTER* IEEMB860   9E2A   01   1
Parmlib Reader: SMFPRM00          00 SMF        IFASMF     ECBE   19   1
WTO: CNZ1234I                     00 CNZJ       MOD1       1B0AC  14   2
WTO: CNZ1234I SYSTEM ZZ13 IS      A3 CNZJ       MOD2         9A   09   2
WTO: CNZ1234I SYSTEM ZZ13 IS      B0 CNZJ       MOD2         9A   09   5
WTO: CNZ5888E UH OH               00 CNZEND     MOD3       1288   18   1
  
```

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Example CNIDTRxx Parmlib Member



```

*                               Jobname  Pgmname                               *
* Tracking Information Mask    Mask      Mask      Comments (ignored)        *
*-----+-----+-----+-----+-----+-----+-----+-----+-----+
CONVCON                        |*       |AJOB    | AJOB ISSUES CONVCON |
MCSOPER: *                    |MAINAS |EMCSCON | EMCSCON GETS MIGID |
MGCR: *                       |SS2    |THESS20 |
MGCR: *                       |*      |MYASIS  |
PARMLIB READER: IEFSSN??     |*MASTER*|IEEMB860|
WTO: IEF452I *                |*      |IEFNB903|
WTO: IEF677I WARNING MESSAGE|*      |IEFNB903|
***** Bottom of Data *****
  
```

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Migration - Coexistence Considerations

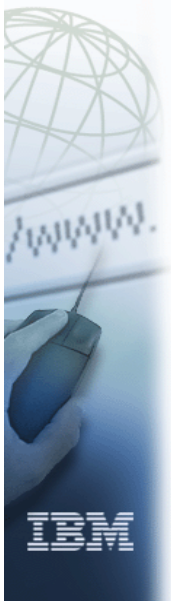


Compatibility requirements

- All systems in a sysplex must be at either
 - z/OS 1.5
 - z/OS V1R4M2 with SDSF APAR PQ73805 installed
 - z/OS V1R4 with APAR OW56244 and SDSF APAR PQ73805 installed
 - Have APAR OW56244 installed on any level between OS/390 V2R10 and z/OS V1R3

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SMF Enhancement z/OS V1R6



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Current SMF Problems



- ❑ SMF Data loss condition occurs when:
 - An SMF data set is not available
 - Data loss occurs after the SMF buffers are depleted, generally after 128 megabytes of buffer space is full
 - Spike of SMF data
 - Data loss occurs if data is generated faster than additional SMF buffers can be obtained
- ❑ Happens in environments with high CPU utilization such as DB2 or CICS
- ❑ ZAP method with OW56001
 - Buffer warning level (% at which IEE986E will be generated)

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New SMF Parameters



- ❑ BUFSIZMAX(nnnnM)
 - Specifies the maximum amount of storage that SMF can use for SMF record data buffering purposes
 - Value Range: 128M - 1024M, or 1G
 - Default: 0128M (128 megabytes)
- ❑ BUFUSEWARN
 - Specifies the buffer warning level percentage when SMF starts issuing message IEE986E
 - When the amount of "in-use" buffer percentage falls below the BUFUSEWARN (the default is 25%), message IEE986E is deleted

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Operator Command



☐ D SMF,O command

- Used to determine current setting for the maximum amount of buffer space available for SMF to use
- Displays the BUFUSEWARN value
- Displayed on the IEE967I SMF options message

IEE967I 11.12.04 SMF PARAMETERS

MEMBER = SMFPRM79

MULCFUNC -- DEFAULT

BUFUSEWARN(25) -- DEFAULT

BUFSIZMAX(0128M) -- DEFAULT

MEMLIMIT(00000M) -- DEFAULT

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SMF Recovery



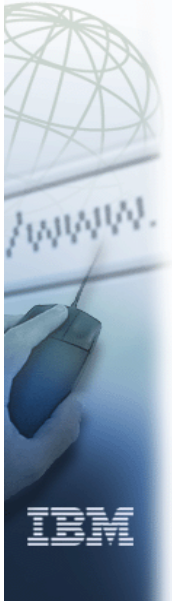
- ☐ All available buffer space in its address space used
 - IEE979W SMF DATA LOST - NO BUFFER SPACE AVAILABLE TIME=hh.mm.ss
- ☐ Problem Determination - Relieving data loss Conditions
 - Check on SMF data set status, SMF buffer settings and types of SMF recording being requested
 - Use the DISPLAY SMF command to check on the status of the SMF data sets
 - If there are no data sets active, use the SMF dump program (IFASMFDP) to clear one and make it available for use
 - If there are no data sets active, use the SMF dump program (IFASMFDP) to clear one and make it available for use

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SMP/E Version 3 Release 3 z/OS V1 R6



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SMP/E V3R3 with z/OS V1R6



- ☐ Communications server FTP client exploitation
- ☐ GIMZIP and GIMUNZIP Extensions
- ☐ RECEIVE FROMNETWORK Service Routine
- ☐ IEBCOPY COPYMOD Support
- ☐ Extended RECEIVE SOURCEID processing
- ☐ REJECT CHECK operand
- ☐ Wildcard on the CSI QUERY dialog
- ☐ New data sets used by GIMGTPKG
 - SMPCLNT and SMPSRVR

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SMP/E V3R3 Tutorial Panel



TUTORIAL

What is New in SMP/E Version 3 Release 3

TUTORIAL

OPTION ==> _

The following is a summary of the enhancements and changes that have been incorporated in SMP/E Version 3 Release 3. Detailed information can be found in the SMP/E manuals. Select a topic number or press ENTER to view the topics in sequence.

More: +

Significant Changes:

- 1 - RECEIVE FROMNETWORK command uses z/OS Communications Server FTP client
- 2 - GIMZIP packages may contain Unix directories and files and VSAM data sets
- 3 - GIMUNZIP can extract archives into existing data sets
- 4 - SMP/E assigns RECEIVE command SOURCEID value to existing SYSMODs
- 5 - SMP/E uses COPYMOD to copy load modules

SMP/E Dialog Changes:

- 6 - CSI Query allows entry name wildcard

Miscellaneous Changes:

- 7 - REJECT command accepts CHECK operand
- 8 - SMP/E provides a new service routine to transfer GIMZIP packages

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SMP/E uses the FTP client provided by z/OS Communications Server



☐ RECEIVE FROMNETWORK has been enhanced to:

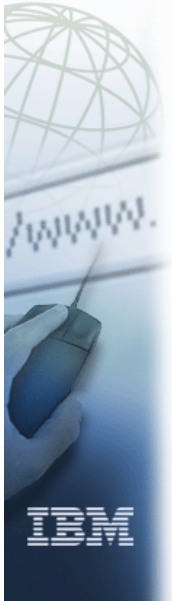
- Allow user credentials and file data transferred between an FTP client and server to be secured with respect to encryption, authentication, and data integrity using the Transport Layer Security (TLS) enablement for FTP
- Allow the z/OS FTP client to connect to FTP servers that reside beyond a firewall that runs a SOCKS server
- Make IPv6 connectivity possible for both the FTP client and server

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ISPF Enhancements z/OS V1R5



Redbooks

International Technical Support Organization



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ISPF Enhancements



- ☐ Data set list utility
 - Catalog Name in Data Set List
- ☐ MOVE/COPY Alias Support
- ☐ PDS/PDSE member delete

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Data Set List Utility



Menu RefList RefMode Utilities Help

Data Set List Utility

Option ==>

blank Display data set list P Print data set list
V Display VT0C information PV Print VT0C information

Enter one or both of the parameters below:

Dsname Level . . . SYS1.PARMLIB
Volume serial . . .

**Catalog name
displayed
in Total View**

Data set list options

Initial View . . . 4 1. Volume Enter "/" to select option

2. Space / Confirm Data Set Delete

3. Attrib / Confirm Member Delete

4. Total / Include Additional Qualifiers

/ Display Catalog Name

When the data set list is displayed, enter either:

"/" on the data set list command field for the command prompt pop-up,
an ISPF line command, the name of a TSO command, CLIST, or REXX exec, or
"=" to execute the previous command.

**New catalog name
option**

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Data Set List Display - Total View



Menu Options View Utilities Compilers Help

DSLST - Data Sets Matching HAIM0.*

Row 1 of 190

Command ==>

Scroll ==> PAGE

Command - Enter "/" to select action

Message

Volume

Tracks	%	XT	Device	Dsorg	Recfm	Lrecl	Blksz	Created	Expires	Referred
Catalog										

HAIM0.ACS.LISTING

SB0X02

1	100	1	3390	PS	FBA	133	2660	1999/05/25	***None***	2003/09/09
---	-----	---	------	----	-----	-----	------	------------	------------	------------

UCAT.VSB0X01

HAIM0.ACS.VALIDATE

SB0X02

1	100	1	3390	PS	FBA	133	2660	2000/03/08	***None***	2000/07/11
---	-----	---	------	----	-----	-----	------	------------	------------	------------

UCAT.VSB0X01

Catalog name

HAIM0.ANMSCHS.DUMP.TERSED

HG6708

641	100	3	3390	PS	FB	1024	6144	2003/01/31	***None***	2003/01/31
-----	-----	---	------	----	----	------	------	------------	------------	------------

UCAT.VSB0X01

HAIM0.ATR.REPORT

SB0X38

10	10	1	3390	PS	FB	80	3120	2000/10/25	***None***	2003/09/09
----	----	---	------	----	----	----	------	------------	------------	------------

UCAT.VSB0X01

HAIM0.AW52698.\$HBB7705

SB0X79

1	100	1	3390	PS	FB	80	32720	2002/03/04	***None***	2002/03/06
---	-----	---	------	----	----	----	-------	------------	------------	------------

UCAT.VSB0X01

HAIM0.AW52698.\$HBB7706

SB0X77

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MOVE/COPY Alias Support



- ❑ Support added to automatically MOVE/COPY the primary member and all associated aliases
- ❑ Following rules apply:
 - The Primary member or any alias may be selected to copy the primary member and all of its aliases
 - Aliases are copied for both load and non-load data sets as well as PDSs and PDSEs
 - Copying to the same data set is not supported
- ❑ New support available with the following functions:
 - Option 3.3 (MOVE/COPY)
 - Option 3.4 (Data Set List) 'MO' & 'CO' line commands
 - Member list 'M' & 'C' line commands
 - Option 11 (Workplace)
 - 'M' & 'C' commands
 - 'MOVE' & 'COPY' actions from 'File' action bar

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Member List Enhancements (SRCHF0R)



SRCHF0R now a supported Member List primary command

Menu Functions Confirm Utilities Help							
DSLIST		SYS1.PARMLIB		Search for string		Row 00001 of 00282	
Command ==>		srchfor sms		"sms"		Scroll ==> HALF	
Name	Prompt	Size	Created	Changed		ID	
\$\$\$\$COIBM		24	1993/04/22	1997/11/27 13:54:25		SCLM	
ADYSET00		21	2001/10/27	2001/10/27 16:49:07		HAIMO	
ADYSET01		12	2001/10/27	2001/10/27 16:49:19		HAIMO	
ADYSET03		6	2003/08/08	2003/08/08 15:11:37		HAIMO	
ALLOC00		34	1997/06/06	2000/09/22 11:57:04		HAIMO	
APPCPMFK		24	1998/07/28	1998/07/28 18:03:31		KYNEF	
APPCPM00		30	2001/10/12	2001/10/12 16:54:02		HAIMO	
ARCCMDJT		577	2002/03/27	2002/03/27 10:58:52		MHLRES3	
ARCCMD00		574	2003/07/23	2003/07/23 18:51:51		MHLRES3	

Menu Functions Confirm Utilities Help							
DSLIST		SYS1.PARMLIB		"sms" found in members		String(s) found	
Command ==>						Scroll ==> HALF	
Name	Prompt	Size	Created	Changed		ID	
ARCCMDJT	*Found	577	2002/03/27	2002/03/27 10:58:52		MHLRES3	
ARCCMD00	*Found	574	2003/07/23	2003/07/23 18:51:51		MHLRES3	
ARCCMD33	*Found	513	2003/07/22	2003/07/22 20:25:27		MHLRES3	
ARCCMD34	*Found	513	2003/07/22	2003/07/22 20:25:56		MHLRES3	
ARCCMD35	*Found	573	2003/07/23	2003/07/23 18:36:04		MHLRES3	
ARCCMD65	*Found	573	2002/03/26	2002/03/26 02:15:08		VAIN	
ARCCMD99	*Found	569	2002/03/04	2002/03/04 15:35:48		MHLRES3	
ARCSTR00	*Found	3	2003/07/22	2003/07/22 20:26:20		MHLRES3	
ARCSTR33	*Found	3	2003/07/22	2003/07/22 20:26:44		MHLRES3	
ASCHPM00		32	1998/07/24	2001/10/12 16:53:23		HAIMO	
BDTSNA65	*Found	70	1999/05/27	2000/01/19 05:12:03		VAINI	

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Member List ... (SORT PROMPT)



SORT command now supports the Prompt field

Menu Functions Confirm Utilities Help

```
DSLIST          SYS1.PARMLIB  SORT command now supports  String(s) found
Command ==> sort prompt  the PROMPT field  Scroll ==> HALF
```

Name	Prompt	Size	Created	Changed		ID
ARCCMDJT	*Found	577	2002/03/27	2002/03/27	10:58:52	MHLRES3
ARCCMD00	*Found	574	2003/07/23	2003/07/23	18:51:51	MHLRES3
ARCCMD33	*Found	513	2003/07/22	2003/07/22	20:25:27	MHLRES3
ARCCMD34	*Found	513	2003/07/22	2003/07/22	20:25:56	MHLRES3
ARCCMD35	*Found	573	2003/07/23	2003/07/23	18:36:04	MHLRES3
ARCCMD65	*Found	573	2002/03/26	2002/03/26	02:15:08	VAIN
ARCCMD99	*Found	569	2002/03/04	2002/03/04	15:35:48	MHLRES3
ARCSTR00	*Found	3	2003/07/22	2003/07/22	20:26:20	MHLRES3
ARCSTR33	*Found	3	2003/07/22	2003/07/22	20:26:44	MHLRES3

Menu Functions Confirm Utilities Help

```
DSLIST          SYS1.PARMLIB  Prompt column now sorted to  Row 00001 of 00282
Command ==>  the top of the member list  Scroll ==> HALF
```

Name	Prompt	Size	Created	Changed		ID
ARCCMDJT	*Found	577	2002/03/27	2002/03/27	10:58:52	MHLRES3
ARCCMD00	*Found	574	2003/07/23	2003/07/23	18:51:51	MHLRES3
ARCCMD33	*Found	513	2003/07/22	2003/07/22	20:25:27	MHLRES3
ARCCMD34	*Found	513	2003/07/22	2003/07/22	20:25:56	MHLRES3
ARCCMD35	*Found	573	2003/07/23	2003/07/23	18:36:04	MHLRES3
ARCCMD65	*Found	573	2002/03/26	2002/03/26	02:15:08	VAIN
ARCCMD99	*Found	569	2002/03/04	2002/03/04	15:35:48	MHLRES3
ARCSTR00	*Found	3	2003/07/22	2003/07/22	20:26:20	MHLRES3
ARCSTR33	*Found	3	2003/07/22	2003/07/22	20:26:44	MHLRES3
BDTSNA65	*Found	70	1999/05/27	2000/01/19	05:12:03	VAINI
COMMND00	*Found	26	1997/01/27	2002/11/07	11:18:46	HAIMO
CUNIMG00	*Found					
CUNIMG01	*Found	5654	2001/06/25	2001/06/25	14:23:36	PA0L0R1

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MOVE/COPY Alias Processing Option



Option 3.3 Panel

Menu RefList Utilities Help

```
Move/Copy Utility  0 Members processed
Option ==> c
```

```
C  Copy data set or member(s)      CP Copy and print
M  Move data set or member(s)      MP Move and print
```

Specify "From" Data Set below, then press Enter key

From ISPF Library:

```
Project . . . ROGERS      (--- Options C and CP only      ---)
Group   . . . JCL
Type    . . . VERS5
Member  . . .              (Blank or pattern for member list,
                           "*" for all members)
```

From Other Partitioned or Sequential Data Set:

```
Data Set Name . . . 'sys1.linklib'
Volume Serial . . .              (If not cataloged)
```

```
Data Set Password . . .              (If password protected)
```

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MOVE/COPY Alias Processing Option



Copying to ROGERS.SYS1.LINKLIB

Menu RefList Utilities Help

Move/Copy Utility

0 members copied

Option ==> C

C Copy data set or member(s) CP Copy and print
M Move data set or member(s) MP Move and print

Specify "From" Data Set below, then press Enter key

From ISPF Library:

Project . . . ROGERS (--- Options C and CP only ---)
Group . . . JCL
Type . . . VERS5
Member . . . (Blank or pattern for member list,
"*" for all members)

From Other Partitioned or Sequential Data Set:

Data Set Name . . . SYS1.LINKLIB
Volume Serial . . . (If not cataloged)

Data Set Password . . . (If password protected)

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MOVE/COPY Alias Processing Option



☐ locate irrenv00 on command line

➤ then s irrenv00 as shown below - Hit Enter

— Copies member and all aliases

Menu Functions Utilities Help

COPY		SYS1.LINKLIB		TO ROGERS.SYS1.LINKLIB		Row 03493 of 03819	
Command ==>						Scroll ==> HALF	
Name	Prompt	Alias-of	Size	TTR	AC	AM	RM
s IRRENV00	-		00046DD8	08ED19	01	31	24
. IRRIRA00			0000FC08	054E10	01	24	24
. IRRMIN00			000152E0	067407	01	24	24
. IRRPWS00			0000A190	05A20A	00	31	ANY
. IRRPWS01		IRRPWS00	0000A190	05A20A	00	31	ANY
. IRRRID00			000291D0	056605	00	ANY	24
. IRRRPXGL			000023C8	05920A	00	31	ANY
. IRRSET00			0000C810	05890E	00	31	ANY
. IRRSNF00			00004160	058A0E	00	31	ANY
. IRRSSC00			00009FE0	058B04	00	31	ANY

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MOVE/COPY Alias Processing Option



☐ Enter 3.4 - Type ROGERS.SYS1.LINKLIB

➤ Browse from DSLIST Panel - see results below

Menu Functions Confirm Utilities Help								
BROWSE			ROGERS.SYS1.LINKLIB			Row 00001 of 00045		
Command ==>						Scroll ==> HALF		
	Name	Prompt	Alias-of	Size	TTR	AC	AM	RM
_____	AD		IRRENV00	00046DD8	00112D	01	31	24
_____	ADDGROUP		IRRENV00	00046DD8	00112D	01	31	24
_____	ADDSD		IRRENV00	00046DD8	00112D	01	31	24
_____	ADDUSER		IRRENV00	00046DD8	00112D	01	31	24
_____	AG		IRRENV00	00046DD8	00112D	01	31	24
_____	ALD		IRRENV00	00046DD8	00112D	01	31	24
_____	ALG		IRRENV00	00046DD8	00112D	01	31	24
_____	ALTDSD		IRRENV00	00046DD8	00112D	01	31	24
_____	ALTGROUP		IRRENV00	00046DD8	00112D	01	31	24
_____	ALTUSER		IRRENV00	00046DD8	00112D	01	31	24
_____	ALU		IRRENV00	00046DD8	00112D	01	31	24
_____	AU		IRRENV00	00046DD8	00112D	01	31	24
_____	CO		IRRENV00	00046DD8	00112D	01	31	24
_____	CONNECT		IRRENV00	00046DD8	00112D	01	31	24

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PDS/PDSE Member Delete by Pattern



☐ New support allows deletion of multiple members in a PDS/PDSE with a single command

☐ Available with the following PDF functions by specifying a member pattern:

- Option 3.1 (Library Utility) - 'D' command
- Option 3.4 (Data Set List) - 'D' line command
- Option 11 (Workplace)

- 'D' command
- 'DELETE->MEMBER' actions from 'File' action bar

☐ LMMDEL service supports a pattern specified with the MEMBER parameter

- LMINIT must use ENQ(EXCLU) to delete all members via MEMBER(*)

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Delete Member using Option 3.1



- ❑ To delete one or more members, fill in the following fields of the library utility panel:
 - Enter D in the option field
 - Enter the library or data set information in the appropriate fields
 - Enter the member name pattern in the member field (for an ISPF library)
 - Or in parentheses after data set name (for "other" data set)
 - A pattern of (*) will delete all members.
 - Leave the newname field blank

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