z/OS Version 1 Release 1 and 2

BCP Enhancements

BCP Enhancements

- △ Unconditional log close
- △ DSAB above the line
- △ GRS wildcard support
  - ➢ ISGNQXIT exit
- △ SMP/E enhancements
- △ SMCS consoles

z/OS Version 1 Release 2

Unconditional Log Close

New Requirements for SYSLOG

- ⚠ Need to turn off hardcopy log

  - ➤ For example, to bring spool volume offline

  - ➤ Temporary situation

- ⚠ Reason why not:

  - ➤ MVS requires hardcopy active at all times

- ⚠ If SYSLOG failing, can cause re-IPL

  - ➤ System saves messages on WQE queue

  - ➤ If queue full, cannot delete them

z/OS V1R2 Changes

- ⚠ Allow log to be closed with no backup

- ⚠ Save messages as far as possible (without allowing an outage)

- ⚠ Externals:

  - ➣ New parameter on:
    - – VARY xxxxxx,HARDCPY,OFF

  - ➣ New message IEE012A

  - ➣ Changed Message IEE299I

  - ➣ Enhanced display for D C,HC command

VARY HARDCPY Command

- ⚠ VARY xxxxxx,HARDCPY,OFF,UNCOND

- ⚠ Save log buffers up to LOGLIM

  - ➣ Only if SYSLOG was turned off UNCOND

  - ➣ Does not apply if OPERLOG or printer turned off

- ⚠ Stop saving messages when LOGLIM reached

  - ➣ Prevents backing up messages on WQE queue

Changed commands

⚠ CONSOLxx LOGLIM={<u>1000</u>|999999}

```
VARY SYSLOG,HARDCPY,OFF,UNCOND
IEE338I SYSLOG   INACTIVE AS HARDCPY
D C,HC
IEE889I 14.36.37 CONSOLE DISPLAY 425
MSG: CURR=2    LIM=1500 RPLY:CURR=2    LIM=999  SYS=SC59
HARDCOPY SUSPENDED ON THIS SYSTEM
LOG BUFFERS IN USE:      2  LOG BUFFER LIMIT:    6000
```

Need to Repair SYSLOG

⚠ K M,LOGLIM=999999 -- Choose a large number

⚠ V SYSLOG,HARDCPY,OFF,UNCOND

⚠ WRITELOG CLOSE

⚠ Repair SYSLOG ....

⚠ WRITELOG START

⚠ V SYSLOG,HARDCPY

⚠ K M,LOGLIM=6000   --   Choose the normal value

z/OS Version 1 Release 2

DSAB above the Line

Storage Constraint Problem

- ⚠ OS/390 V2R6 removal of the 10,000 limit on DDs increased the number of concurrent allocations

- ⚠ DB2 customers have indicated a need for 100,000 concurrent allocations within the next few years

- ⚠ Increased concurrent allocation creates below the 16MB line storage constraints

- ⚠ Solution: Place DSABs, TCTIOT, and DSNT above the 16 MB line

DSAB Chaining


```
                DSAB                      DSAB
          ┌──────────────┐          ┌──────────────┐
          │ below        │          │ below        │
          │              │          │              │
          │        all   │          │        all   │
          └──────────────┘          └──────────────┘

16MB line
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
  QDB                DSAB                      DSAB
┌────────────┐  ┌──────────────┐          ┌──────────────┐
│ first below│  │ below        │          │ below        │
│ last below │  │              │          │              │
│            │  │              │          │              │
│ first "all"│  │        all   │          │        all   │
│ last "all" │  └──────────────┘          └──────────────┘
└────────────┘
```
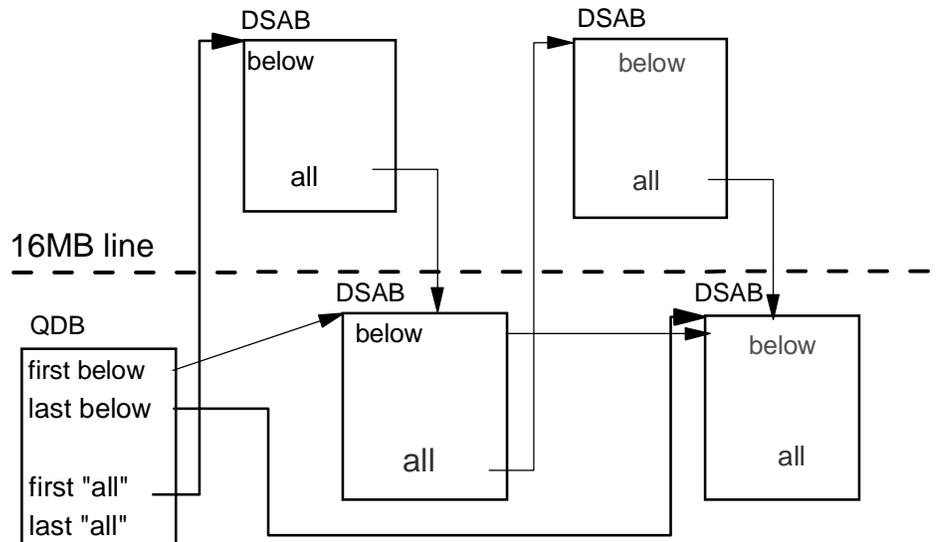
All chains have PREV and NEXT pointers

Software using DSAB Chains

⚠ Vendor products

⚠ Installation exits:

➢ SVC99, SMS ACS exit, DEVSERV, OPEN, EOV, CLOSE

⚠ Resource managers - task and address space termination

⚠ Subsystems that support SUBSYS on a DD statement

⚠ Subroutines called in a variety of environments

⚠ Performance monitors

⚠ Debugging tools

z/OS Version 1 Release 2

Global Resource Serialization (GRS) Wildcard Support

GRS Enhancements (V1.2)

⚠ RNL wildcard support

- ➤ ENQ/DEQ installation exit support

- ➤ Miscellaneous changes

- ➤ Compatibility support

New RNLDEF Format

```
RNLDEF
   RNL(INCL|EXCL|CON)
   TYPE(SPECIFIC|GENERIC|PATTERN)
   QNAME(qname)
   [RNAME(rname)]

   PATT acceptable as short name
```

Wildcard Characters

- A pattern resource name entry, containing wildcard characters, extends the matching specification
- The wildcard characters (*,?) can be used within both parts of the resource name

* Allows matching for a substring of any characters for any lengths, including zero

? Allows matching for any single character

Scanning RNLs for a Match

After all the defintions are implemented and the system is running, all of the specific entries in a RNL are searched before scanning the generic and pattern RNL entries for a match. If no specific entry matches, the first generic or pattern entry that matches is used.

Global and Local Resource Definitions
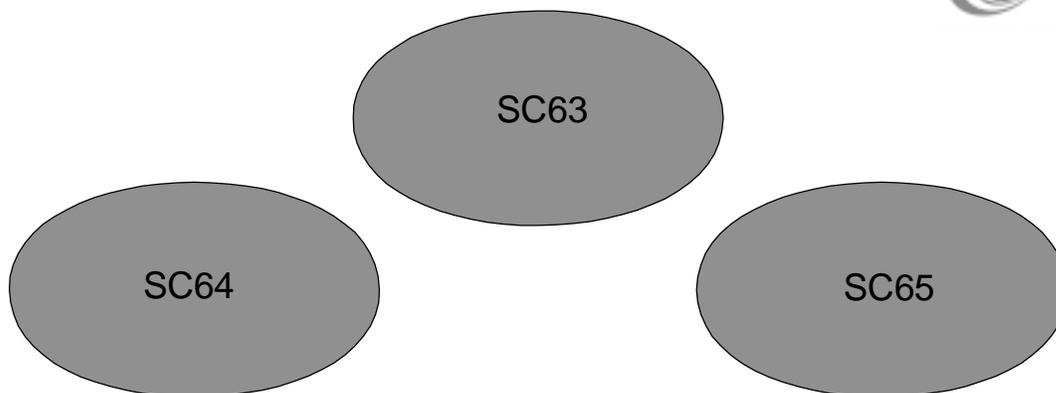
SC63

SC64

SC65

Local Resources
SYS1.SC63.LOGREC
SYS1.SC63.MANX
SYS1.SC64.LOGREC
SYS1.SC64.MANX
SYS1.SC65.LOGREC
SYS1.SC65.NUCLEUS
SYS1.SC65.LINKLIB
SYS1.SC65.LPALIB
SYS1.SC65.MANX

GLobal Resources
SYS1.PROD.NUCLEUS
SYS1.PROD.LINKLIB
SYS1.PROD.LPALIB
SYS1.SC63.LINKLIB
SYS1.SC63.LPALIB
SYS1.SC64.LINKLIB
SYS1.SC64.LPALIB

Without Wildcard Support

```
/* SYSTEM INCLUSION LIST */
RNLDEF RNL(INCL) TYPE(GENERIC)
QNAME(SYSDSN) RNAME(SYS1.PROD)
RNLDEF RNL(INCL) TYPE(GENERIC)
QNAME(SYSDSN) RNAME(SYS1.SC63)
RNLDEF RNL(INCL) TYPE(GENERIC)
QNAME(SYSDSN) RNAME(SYS1.SC64)

/* SYSTEM EXCLUSION LIST */
RNLDEF RNL(EXCL) TYPE(SPECIFIC)
QNAME(SYSDSN) RNAME(SYS1.SC63.LOGREC)
RNLDEF RNL(EXCL) TYPE(SPECIFIC)
QNAME(SYSDSN) RNAME(SYS1.SC64.LOGREC)
RNLDEF RNL(EXCL) TYPE(SPECIFIC)
QNAME(SYSDSN) RNAME(SYS1.SC63.MANX)
RNLDEF RNL(EXCL) TYPE(SPECIFIC)
QNAME(SYSDSN) RNAME(SYS1.SC64.MANX)
RNLDEF RNL(EXCL) TYPE(GENERIC)
QNAME(SYSDSN) RNAME(SYS1.TEST)
```

With Wildcard Support

```
/* SYSTEM INCLUSION LIST */
RNLDEF RNL(INCL) TYPE(PATTERN)
QNAME(SYSDSN) RNAME(SYS1.*.*)

/* SYSTEM EXCLUSION LIST */
RNLDEF RNL(EXCL) TYPE(PATTERN)
QNAME(SYSDSN) RNAME(SYS1.*.LOGREC)
RNLDEF RNL(EXCL) TYPE(PATTERN)
QNAME(SYSDSN) RNAME(SYS1.*.MANX)
RNLDEF RNL(EXCL) TYPE(GENERIC)
QNAME(SYSDSN)  RNAME(SYS1.TEST)
```

ENQ/DEQ Installation Exit

- △ Current RNL exit concerns - (ISGGREX0)

  - ➤ Need for greater control to modify an ENQ request

  - ➤ Exit is linked into the nucleus requiring a reIPL

  - ➤ Allows only minor changes to ENQ processing

    - – Can not change a resource

  - ➤ Poorly coded exit can cause:

    - – Disabled waitstate

    - – Resource integrity exposure

ENQ/DEQ Exit Support - (V1.2)

- △ Change the resource name (QNAME and/or RNAME)

- △ Change the resource SCOPE

- △ Change the UCB address (for a RESERVE)

- △ Indicate to convert a RESERVE to an ENQ

- △ Indicate to convert an ENQ to a RESERVE (add a UCB specification)

- △ Indicate to bypass RNL processing

Invoked only for SYSTEM and SYSTEMS requests

Compatibility Support

⚠ This support is available on OS/390 R8 through R10 and z/OS V1R1 via a PTF

⚠ This support runs in any GRS mode as follows:

➢ NONE (ENQ/DEQ exit only)

➢ RING

➢ STAR

Coexistence Support

⚠ Systems with wildcard support installed can tolerate being in a sysplex with systems that do not have the PTF installed as follows:

➢ Mixed z/OS and OS/390 levels are acceptable

➢ Do not define PATTERN entries in the RNLs if the PTF is not installed on all systems causing unpredictable results such as:

 − Resources not being correctly serialized

 − 0A3 waitstate

GRS Wildcard

ISGNQXIT - GRS Exit for Cross Sysplex DASD Sharing


DASD Sharing between Sysplexes

⚠ New GRS exit - ISGNQXIT

➢ Supports shared DASD with z/OS and OS/390 systems across GRS-plexes

➢ All RESERVE requests become HW RESERVEs

sysplex A

z900 - 325 MSUs

LPAR A 200 MSUs	LPAR B 125 MSUs
CICS DB2 z/OS	DB2 z/OS
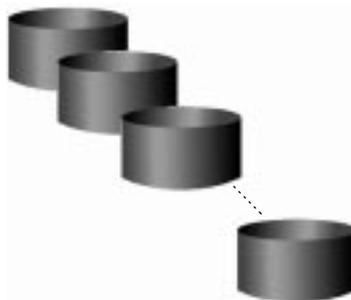
sysplex B

z900 - 325 MSUs

LPAR C 200 MSUs	LPAR D 125 MSUs
CICS DB2 z/OS	IMS z/OS

ISGNQXIT Exit

⚠ All RESERVE requests for shared volumes between sysplexes

➤ Result in a HW RESERVE

⚠ Exit used to:

➤ Receive control for all RESERVE-ENQ-DEQ macros

– Before the GRS RNLs process logic

⚠ Exit uses the following RNL definitions

```
RNLDEF RNL(CON) TYPE=(SPECIFIC|GENERIC)
QNAME=(HWRESERV)
RNAME=(VOLSER|volser-prefix)
```

Conversion List Example

```
RNLDEF RNL(CON) TYPE(GENERIC)
QNAME(SYSVTOC)

RNLDEF RNL(CON) TYPE(GENERIC)
QNAME(SPFEDIT)

RNLDEF RNL(CON) TYPE(GENERIC)
QNAME(SYSIGGV2)

RNLDEF RNL(CON) TYPE(PATTERN)        /*this entry is bypassed*/
QNAME(ARC*)                          /*by the exit */

RNLDEF RNL(CON) TYPE(SPECIFIC)
QNAME(HWRESERV)                       /*SPECIAL NAME*/
RNAME(XA9RES)                         /*ALWAYS RESERVE XA9RES*/

RNLDEF RNL(CON) TYPE(GENERIC)
QNAME(HWRESERV)                       /*SPECIAL NAME*/
RNAME(CIX)                            /*ALWAYS RESERVE VOLUMES*/
                                       /*BEGINNING WITH CIX   */
```

Exit Restrictions

- △ Does not propagate cross sysplex global ENQs scope=SYSTEMS

  - ➢ Guarantees HW RESERVEs issued for volumes
    - – QNAME(HWRESERV)

- △ Any serialization for DASD resource (PDS, data set)

  - ➢ global ENQ (scope=SYSTEMS)
    - – Exit does NOT serialize resources across sysplexes

- △ PATTERN - NOT supported

Exit Installation and Activation

- △ Activate exit in all systems sharing DASD

  - ➢ Across sysplexes

- △ Update the RNL conversion table in GRSRNLxx

- △ Activate RNLs in all systems sharing DASD

  - ➢ Across sysplexes

- △ Remove the old ISGGREX0 exit, if installed

  - ➢ You can have some systems that use the old exit and others using the new exit

Exit Installation and Activation

- Link-edit the exit in a user library (RENT)

- Operator command to activate

SETPROG EXIT,ADD,EX=ISGNQXIT,MOD=ISGNQXIT,DSN=SYS1.USER.LINKLIB

OR

EXIT STATEMENT of the PROGxx PARMLIB MEMBER:
    EXIT ADD
    EXITNAME(SYS.ISGNQXIT)
    MODNAME(ISGNQXIT)
    STATE=ACTIVE

Exit Verification

- Use ENQ/RESERVE/DEQ Monitor

  - Monitor selection 1 - Major Names Display

    - Extended with a new column if request modified by ISGNQXIT

  - Monitor selection 3 - Volume List Display

    - Shows volumes where HW reserves were issued

- GRS Monitor - See

  - z/OS MVS Planning: Global Resource Serialzation

ENQ/DEQ Monitor

```
              ENQ/DEQ Monitor - Major Name List        Row 1 to 20 of 29

Enter S to select a Major Name for details     .
      L major on command line to locate a Major.   Elapsed seconds:      99


   Sel.   ----------   -----   ----   -----   -------   -Average-   -Reserved-
   Field  Major Name   Scope   Exit   RNL     Counter     msec        seconds
   _       SYSZJES2    *RES                      101       21           2
   _       SYSZVVDS    *RES    YES                2        2            0
   _       SYSVTOC     *RES    YES                2        69           0
   _       SYSIGGV2    *RES                       2        14           0
   _       SPFEDIT      SYSS                      9
   _       IGDCDSXS     SYSS                      7
   _       CHANGEQU     SYSS                     10
   _       AUDITCOD     SYSS           NO        26
   _                    SYSS           NO        60
   _       SYSZVVDS     SYSS                     168
   _       SYSZRACF     SYSS                      8
   _       SYSZMCS      SYSS           NO         7
   _       SYSZIOS      SYSS           NO        11
   _       SYSZENQM     SYSS           NO         1
   _       SYSZDSCB     SYSS                      2
   _       SYSZATR      SYSS           NO        30
   _       SYSVSAM      SYSS                     29
   _       SYSIGGV2     SYSS                     96
   _       SYSDSN      *SYSS                     11
   _       SIBIXFP      SYS                       1
```

Volume List Display

⚠ Volume BOOK01 shared between sysplexes

⚠ Volume SBOX23 - JES2 CKPT RESERVE major
   name in RNL exclusion list

```
                  ENQ/DEQ Monitor - VOLUME List          Row 1 to 2 of 2

 Enter S to  select a Volume for details
       A for active Reserves on  Volume
       L volume on command line to locate a Volume
    *    indicates volume where reserves are not converted
-- - ------ ------- Dev. Max --------- ------------ Reserve Time -------------
S.  Volume Tot.Res nbr   Res Elap(sec)  Avg.(ms)  Min.(ms)  Max.(ms) Tot.(sec)
 _ * BOOK01      6 2601  04     192         0         0         0         0
 _ * SBOX23    247 2558  01     248         0        17        69         0
 ***************************** Bottom of data *****************************
 --------------------------------------------------------------------------
```

Volume Entry List

Selecting the entry for volume BOOK01 the major-minor name combination of the
RESERVE macros are displayed, the ISPF panel is shown in the following figure.

```
--------------------------------------------------------------------------------
                    ENQ/DEQ Monitor - VOLUME Entry List      Row 1 to 3 of 3

 Volser. . . . . . : BOOK01       Average Reserve Time (ms) : 0
 Tot.nr of Reserve : 6            Minimum Reserve Time (ms) : 0
 Dev.nr. . . . . . : 2601         Maximum Reserve Time (ms) : 0
 Max Reserve Cnt. .: 04           Total   Reserve Time (sec): 0
 Elapsed Time (sec): 192          Volume  Reserve Rate (min): 2

 Interval
 - Rate -- ----- -------- --------------------- ------------ Time ------------
 S  min.    Count MajName Minor name (max 22 ch) Avg ms  Min ms  Max ms Tot sec
 _     0        2 SYSIGGV2 UCAT.VBOOK01              14       7      22       0
 _     0        2 SYSVTOC  BOOK01                    68      58      79       0
 _     0        2 SYSZVVDS BOOK01                     2       2       2       0
```

---

z/OS Version 1 Release 2

SMP/E Enhancements

Migrating to z/OS SMP/E Release 2

- ⬡ SMP/E availability

- ⬡ Nucleus backup

- ⬡ Improved user customization

- ⬡ Usability enhancements

  - ➤ SMPPTS data set management

  - ➤ HOLDDATA summary reports

- ⬡ eDelivery infrastructure

  - ➤ RECEIVE from a network

SMP/E Availability

- ⬡ New version change for SMP/E introduced with this new release of z/OS

- ⬡ SMP/E is also available to be ordered separately as an individual product

Nucleus Extension - Nucleus Backup

- In OS/390 R10, IEANUC01 is split
  - IEANUC01 contains things regardless of ESA/390 or ESAME architecture
- 2 other nucleus extensions exist
  - IEANUC11 - ESA/390-only csects - Only included in nucleus when ARCHLVL 1
  - IEANUC21 - z/Architecture-only csects - Only included in nucleus when ARCHLVL 2
- If you create an alternate nucleus - IEANUC0x
  - IEANUC1x and IEANUC2x correspond to IEANUC0x - you must also create the corresponding nucleus extensions

SMP/E Nucleus Backup

- Before V1R2 - a backup copy of IEANUC01 was created if maintenance applied to nucleus

- With V1R2 - Nucleus is now logically composed of three physical members

  - This made it difficult to recover from backups of three different members that may be at different maintenance levels

  - NUCID has been removed from the OPTIONS entry

  - Thus: Nucleus members will not be backed up

Improved User Customization

⚠ Dynamic allocation using GIMDDALC

➢ Allocation of data sets replaces (DD - DDDEF - GIMMPDFT module)

– SYSOUT - Temporary - SMPTLIB

➢ GIMDDALC is a member that is added to the SMPPARM data set

⚠ SMP/E exit routines

GIMDDALC Control Statements

SYSOUT data sets

```
>>--DD(ddname)--SYSOUT(--class--)--.----><
                      --*--
                      --DEFAULT--   --,TERM--
```

Temporary data sets

```
>>--DD(ddname)----------------------------------->
              --BLOCK(size)--  --SPACE(primary,secondary)--
              --CYLINDERS--
              --TRACKS--

>---------------------------------------------->
   --DIR(nnnn)--  --UNIT(type)--  --VOLUME(volid)--

>---------------------------------------------->
   --DATACLAS(name)--  --MGMTCLAS(name)--  --STORCLAS(name)--

>----------------------.-----------------------><
   --DSNTYPE(--LIBRARY--)--
            --PDS--
```

SMPTLIB data sets

```
>>--DD(SMPTLIB)--------------------------------->
              --SPACE(primary,secondary)---TRACKS--

>-----------------.-----------------------------><
   --DIR(nnnn)--
```

Sample GIMDDALC Member

```
/* DEFINE ALLOCATIONS FOR SYSOUT DATA SETS */
DD(SMPOUT)   SYSOUT(2,TERM)
DD(SMPLIST)  SYSOUT(2)
DD(SMPRPT)   SYSOUT(2)
DD(SMPSNAP)  SYSOUT(2)
DD(SYSPRINT) SYSOUT(*)
DD(LNKPRINT) SYSOUT(*)
/* LNKPRINT IS DEFINED IN THE LKED UTILITY ENTRY AND WILL BE USED FOR LINK-EDIT OUTPUT */.
DD(CPYPRINT) SYSOUT(*)
/* CPYPRINT IS DEFINED IN THE COPY UTILITY ENTRY AND WILL BE USED FOR IEBCOPY OUTPUT
*/.
DD(SYSUDUMP) SYSOUT(2).
DD(SMPPUNCH) SYSOUT(B).
DD(SMPDEBUG) SYSOUT(2).
/* DEFINE ALLOCATIONS FOR TEMPORARY DATA SETS
DD(SMPWRK1)  BLOCK(3120) SPACE(364,380) DIR(111) UNIT(SYSALLDA).
DD(SMPWRK2)  BLOCK(3120) SPACE(364,380) DIR(111) UNIT(SYSALLDA).
DD(SMPWRK3)  BLOCK(3120) SPACE(364,380) DIR(111) UNIT(SYSALLDA).
DD(SMPWRK4)  BLOCK(3120) SPACE(364,380) DIR(111) UNIT(SYSALLDA).
DD(SMPWRK6)  BLOCK(3120) SPACE(364,380) DIR(111) UNIT(SYSALLDA).
DD(SYSUT1)   BLOCK(3120) SPACE(380,760)          UNIT(SYSALLDA).
DD(SYSUT2)   BLOCK(3120) SPACE(380,760)          UNIT(SYSALLDA).
DD(SYSUT3)   BLOCK(3120) SPACE(380,760)          UNIT(SYSALLDA).
DD(SYSUT4)   TRACKS      SPACE(1,1)              UNIT(SYSALLDA).
DD(SYSPUNCH) TRACKS      SPACE(25,10)  DIR(10)   UNIT(SYSALLDA).
DD(SMPTLOAD) TRACKS      SPACE(50,20)  DIR(16)   UNIT(SYSALLDA).
/* DEFINE ALLOCATIONS FOR SMPTLIB DATA SETS.  THIS SAMPLE SMPTLIB ALLOCATION CORRESPONDS TO
SMP/E'S DEFAULT SMPTLIB ALLOCATION */
DD(SMPTLIB)  TRACKS SPACE(0,0) DIR(0).
```

New GIMEXITS Member

- ⚠ New member in SMPPARM data set

  - ➤ Replaces GIMMPUXD exit routine driver

  - ➤ Contains control statements

SMP/E Exit Point

Exit Routine Module Name

```
>>—EXIT(——RECEIVE——)—MODNAME(name)———————————————.———><
           └—RETRY——┘              └—DATASET(dataset)—┘
```
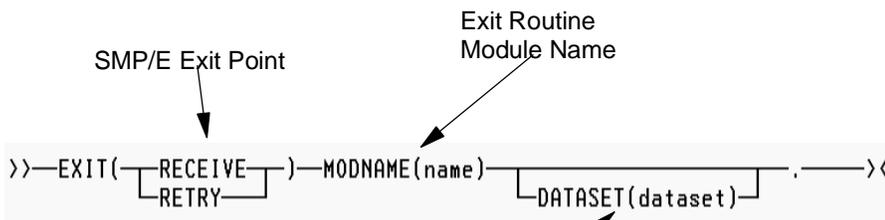
Data set which contains the exit routine module
  - ➤ Must be cataloged, and must be authorized
  - ➤ If not specified, the exit routine is located using the normal program search (STEPLIB, JOBLIB, link list)

GIMEXITS Sample Member

```
EXIT(RECEIVE) MODNAME(MYRECEX) DATASET(SMPE.EXITS.LOAD)

/* Defines exit routine MYRECEX in data set SMPE.EXITS.LOAD
          to get control during SMP/E RECEIVE command processing.
                                                                */
 EXIT(RETRY)   MODNAME(MYRTYEX) DATASET(SMPE.EXITS.LOAD)

/* Defines exit routine MYRTYEX in data set SMPE.EXITS.LOAD
          to get control during SMP/E RETRY processing. */
```

RECEIVE from a Network

- ⚠ Enable SMP/E to RECEIVE input from a network location

- ⚠ Specifically, RECEIVE software packages over a network rather than only from TAPE or DASD

- ⚠ Enables a seamless integration of internet delivery and SMP/E installation

- ⚠ Can also be used within an intranet as well as the internet

eDelivery Infrastructure

TCP/IP Network
(Internet)

SMPNTS

/SMPNTS/packagedir/

GIMPAF.XML

DOCLIB

README

/SMPPTFIN/

/SMPRELV/

Package
Attribute
File

DOCLIB

SMPMCS

README

RELFILEs

GIMZIP

Network packaging
service routine

RECEIVE

GIMUNZIP

SMPTLIBs

SMPCSI

SMPPTS

DOCLIB

SMPMCS

DOCLIB

RELFILEs

README
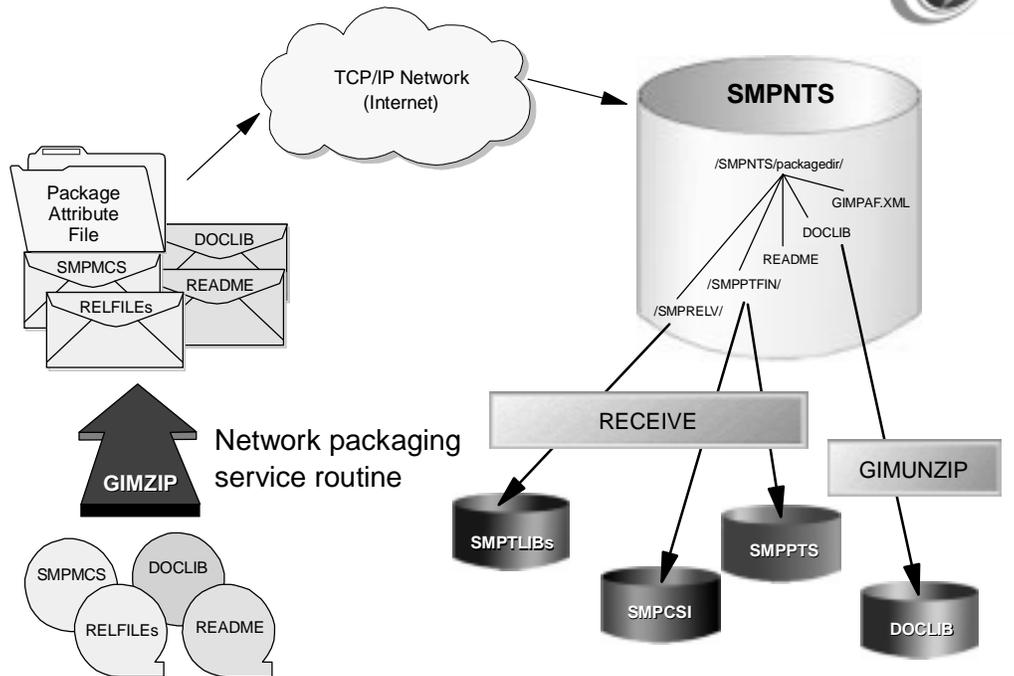
Network Components

△ GIMZIP - Network packaging service routine

  ➤ Creates transportable packages

    – MCS - RELFILEs - HOLDDATA - (doc, samples, etc)

△ Network RECEIVE function

  ➤ Transfers packages via TCP/IP

  ➤ Extracts data from packages

  ➤ Performs the traditional RECEIVE - GIMUNZIP

GIMZIP JCL

```
//ZIPSTEP   EXEC PGM=GIMZIP
//SMPOUT    DD SYSOUT=*
//SYSUT2    DD UNIT=SYSALLDA,SPACE=(CYL,(200,20))
//SYSUT3    DD UNIT=SYSALLDA,SPACE=(CYL,(50,10))
//SYSUT4    DD UNIT=SYSALLDA,SPACE=(CYL,(25,5))
//SMPDIR    DD PATH='/package directory/'
//SYSIN     DD *
<GIMZIP
  description="Package for SMPE V3R1">
  <FILEDEF
    name="USER.HMP1D00.SMPMCS"
    type="SMPPTFIN" />
  <FILEDEF
    name="USER.IBM.HMP1D00.F1"
    type="SMPRELF" />
  <FILEDEF
    name="USER.IBM.HMP1D00.F2"
    type="SMPRELF" />
  <FILEDEF
    name="USER.HMP1D00.README.TXT"
    type="README" />
  <FILEDEF
    description="Documents including PGM DIR"
    name="USER.HMP1D00.DOCLIB" />
</GIMZIP>
/*
```

GIMZIP program

Directory to contain the output archives and the Package Attribute File (package directory)

Modification Control Statement data set

RELFILE data sets

README sequential data set will not be archived because of the type attribute

Document library data set

GIMZIP Package Contents

HFS

/package directory/
  GIMPAF.XML
  SMPPTFIN/
    S0001.USER.HMP1D00.SMPMCS.pax.z
  SMPRELF/
    USER.IBM.HMP1D00.F1.pax.z
    USER.IBM.HMP1D00.F2.pax.z
  SMPHOLD/
  S0004.USER.HMP1D00.README.TXT
  S0005.USER.HMP1D00.DOCLIB.pax.z

USER.HMP1D00.SMPMCS
USER.IBM.HMP1D00.F1
USER.IBM.HMP1D00.F2
USER.HMP1D00.DOCLIB
USER.HMP1D00.README.TXT
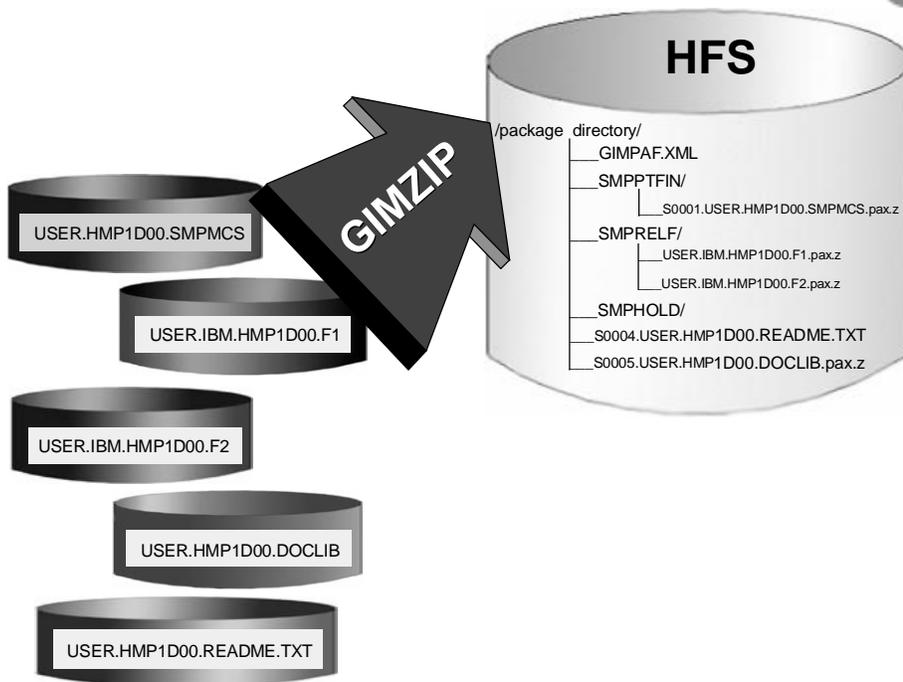
New RECEIVE Command Syntax

Specifies the input
for RECEIVE is on an
FTP server

Specifies the input for
RECEIVE is in the SMPNTS

After a successful network
RECEIVE, delete the package from
the SMPNTS

```
                  ┌─SYSMODS─┐    ┌─HOLDDATA─┐
>>──RECEIVE───────┴─────────┴────┴──────────┴──────────────────────────────────>

>───┬──FROMNETWORK(─┤ Network Options ├─)─┬────────┬─DELETEPKG─┬───●──────><
    └──FROMNTS(package id)────────────────┘        └───────────┘

Network Options:
├──SERVER(ddname)──┬────────────────┬──┬──────────────┬───────────────┤
                   └─CLIENT(ddname)─┘  └─TRANSFERONLY─┘
```
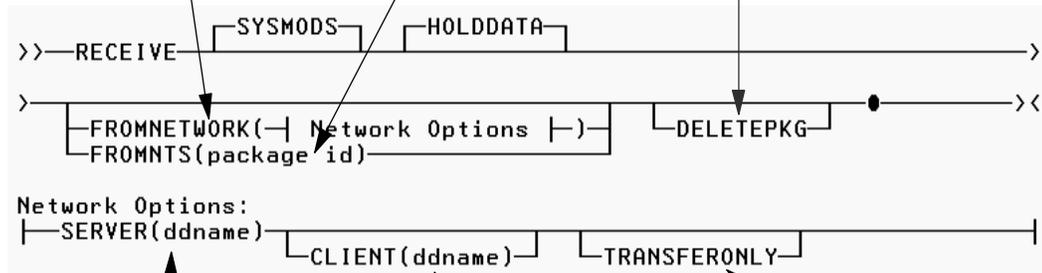
SERVER ddname provides
information about the server
which contains the input

CLIENT ddname provides
information about the
local machine

Transfer to SMPNTS
only and do not
perform RECEIVE

Network RECEIVE Function

SMPNTS

TCP/IP Network
(internet)

/SMPNTS/packagedir/

GIMPAF.XML

DOCLIB

README

/SMPPTFIN/

/SMPRELV/
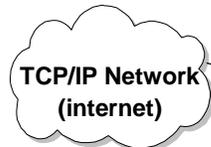
IP connected server
as input to RECEIVE
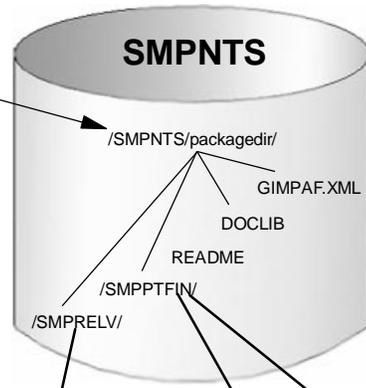
```
<SERVER
   host="host name | host ip address"
   port="port number"
   user="userid"
   pw="password"
   account="account information" >
   <PACKAGE
     file="package attribute file name"
     hash="package hash value"
     id="package identifier" />
</SERVER>
```

RECEIVE

SMPTLIBs

SMPCSI

SMPPTS

GIMUNZIP Service Routine

SMPNTS

/SMPNTS/packagedir/

GIMPAF.XML

DOCLIB

README

/SMPPTFIN/

/SMPRELV/

GIMUNZIP

DOCLIB

```
<GIMUNZIP>
   <ARCHDEF
     name="archive file name"
     volume="volser"
     prefix="data set prefix"
     newname="data set name" />
 </GIMUNZIP>
```
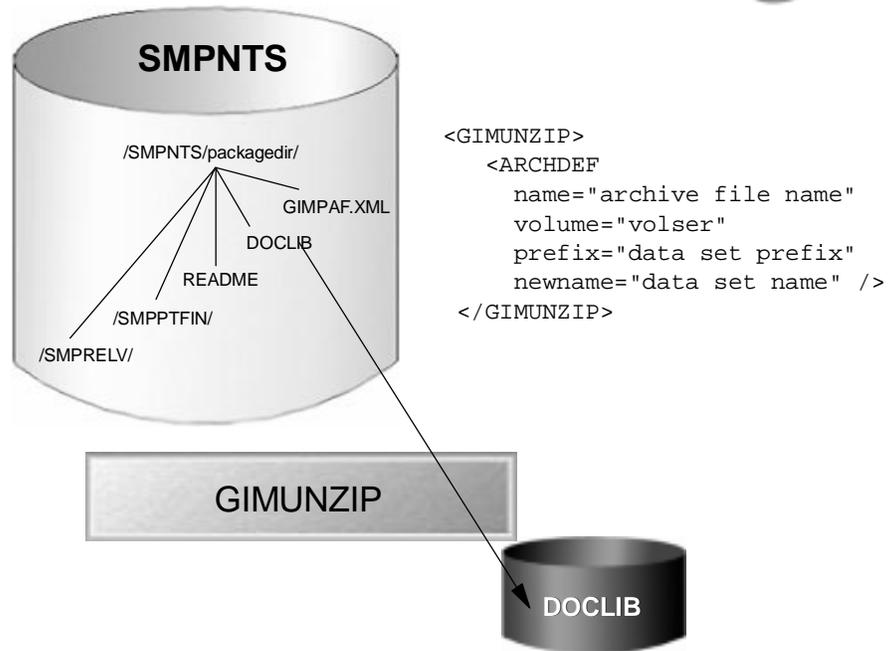
GIMUNZIP JCL

```
//UNZIP    EXEC PGM=GIMUNZIP,PARM="HASH=YES"
//SMPOUT   DD SYSOUT=*
//SYSPRINT DD SYSOUT=*
//SYSUT3   DD UNIT=SYSALLDA,SPACE=(CYL,(50,10))
//SYSUT4   DD UNIT=SYSALLDA,SPACE=(CYL,(25,5))
//SMPDIR   DD PATH='/u/smpe/SMPNTS/HMP1D00/'
//SYSIN    DD *
<GIMUNZIP>
<ARCHDEF
name="S0005.USER.HMP1D00.DOCLIB.pax.Z"
newname="USERID.DOCUMENTS.HMP1D00" />
</GIMUNZIP>
/*
```

GIMZIP and GIMUNZIP

⚠ Available on current releases - APAR IR43312

- ➤ UR52471 - OS/390 Releases 7,8,9,10 - z/OS R1

- ➤ UR52470 - OS/390 Releases 5 and 6

SMPPTS Data Set Management

Each data set is compressed and the operation is retried before moving on to the next spill data set.

Global zone and primary SMPPTS data set → Global Zone ↔ **SMPPTS**

SMPPTS1

When the primary SMPPTS is out-of-space, then PTFs are written to the SMPPTS1 data set →

SMPPTS2

When the primary SMPPTS1 is out-of-space, then PTFs are written to the SMPPTS2 data set →

SMPPTS99

Can have up to 99 SMPPTS spill data sets →

```
//step    EXEC PGM=GIMSMP
//SMPCSI  DD DSN=SMP.GLOBAL.CSI,DISP=SHR
//SMPPTS  DD DSN=SMP.SMPPTS.DATA,DISP=SHR
//SMPPTS1 DD DSN=SMP.SMPPTS1.DATA,DISP=SHR
//SMPPTS2 DD DSN=SMP.SMPPTS2.DATA,DISP=SHR
...
/*
```

HOLDDATA Summary Reports

- △ Current support
  - ➤ HOLDDATA printed in a different report than error messages
- △ V1R2 support
  - ➤ HOLDDATA displayed immediately after messages
    - – Report of unresolved HOLDs
    - – Report of bypassed HOLDs
    - – Summary report of HOLDs (Message to see others)

SMPPRT Output

```
PAGE 0001  - NOW SET TO TARGET ZONE MVST111  DATE 09/07/01  TIME 11:06:56  SMP/E  31.00  SMPPRT  OUTPUT

  APPLY
         SELECT(UW81642
                    )
         BYPASS(   HOLDSYSTEM
                )
         JCLINREPORT
         GROUPEXTEND
         RETRY(YES)   .
PAGE 0002  - NOW SET TO TARGET ZONE MVST111  DATE 09/07/01  TIME 11:07:04  SMP/E  31.00  SMPPRT OUTPUT

BYPASSED HOLD REASON REPORT FOR APPLY PROCESSING

NOTE: THE HOLDDATA REPORT OF UNRESOLVED HOLD REASON IDS CONTAINS ADDITIONAL HOLDDATA INFORMATION
       FOR SYSMODS WITH A STATUS OF HELD.

TYPE      REASON ID  FMID     SYSMOD   STATUS    ++HOLD DATA
------    ---------  -------  -------  --------  --------------------------------
SYSTEM    IPL        HJS7705  UW81642  APPLIED   ++ HOLD(UW81642) SYS FMID(HJS7705) REASON(IPL) DATE(01214)
                                                         COMMENT
```

SMPPRT Output (Con't)

```
COMMENT
 (****************************************************************
  * FUNCTION AFFECTED: JES3                          (OW48548) *
  ****************************************************************
  * DESCRIPTION      : IPL with CLPA AVOIDABLE                  *
  ****************************************************************
  * TIMING           : Post-APPLY                               *
  ****************************************************************

  IPL hold for APAR OW48548.

  Installation On (All processors)
               Order (Any)
  Activation   Order (Any)
               Type/JES3 restart (Hot,Local)
               Type/IPL (Rolling/DynLPA)
               CLPA (Yes)
 (See Apar II07968 for definitions)).
```

HOLDDATA Summary Reports...

Report of Unresolved HOLDs

```
UNRESOLVED HOLD REASON REPORT FOR APPLY CHECK PROCESSING

NOTE: THE SYSMODS LISTED IN THIS REPORT ALSO APPEAR IN THE CAUSER SYSMOD SUMMARY REPORT.

TYPE    REASON ID  FMID    SYSMOD   ++HOLD DATA
------  ---------  ------- -------  ----------------------------------------------------------------
ERROR   AW49434    HBB6606 HBB6606  ++HOLD(HBB6606) FMID(HBB6606) REASON(AW49434) ERROR DATE(01168)
                                     COMMENT(SMRTDATA(FIX(UW80077) SYMP(FUL,SYSPLXDS)
                                     CHGDT(010617))) CLASS(HIPER).

        AW50061    HBB7703 UW80059  ++HOLD(UW80059) FMID(HBB7703) REASON(AW50061) ERROR DATE(01180)
                                     COMMENT(SMRTDATA(FIX(UW80588) CHGDT(010629))) CLASS(PE).

        AW50061    JBB6609 UW80061  ++HOLD(UW80061) FMID(JBB6609) REASON(AW50061) ERROR DATE(01180)
                                     COMMENT(SMRTDATA(FIX(UW80589) CHGDT(010629))) CLASS(PE).

        AW50185    HDZ11E0 UW80552  ++HOLD(UW80552) FMID(HDZ11E0) REASON(AW50185) ERROR DATE(01178)
                                     COMMENT(SMRTDATA(CHGDT(010627))) CLASS(PE).
```

HOLDDATA Summary Reports...

Report of Bypassed HOLDs

```
BYPASSED HOLD REASON REPORT FOR APPLY CHECK PROCESSING

NOTE: THE HOLDDATA REPORT OF UNRESOLVED HOLD REASON IDS CONTAINS ADDITIONAL HOLDDATA INFORMATION FOR
      SYSMODS WITH A STATUS OF HELD.

TYPE      REASON ID  FMID     SYSMOD   STATUS    ++HOLD DATA
------    ---------  -------  -------  --------  --------------------------------------------------------
SYSTEM    ACTION     HBB9999  UZ12345  APPLIED   ++HOLD(UZ12345) SYSTEM REASON(ACTION) FMID(HBB9999)
                                                     COMMENT
                                                      (Because there are changes to the DFSORT installation
                                                       ...
                                                       DFSMSrmm APAR OW41271 is related to this situation.).

                              UZ34567  APPLIED   ++HOLD(UZ23456) SYSTEM REASON(ACTION) FMID(HBB9999)
                                                     COMMENT
                                                      (Installation of this PTF will correct
                                                       ...
                                                       data set will be created.).

          DOC        HBB9999  UZ12345  APPLIED   * SUPPRESSED HOLDDATA

          IPL        HBB9999  UZ54321  APPLIED   ++HOLD(UZ54321) SYSTEM REASON(IPL) FMID(HBB9999)
                                                     COMMENT
                                                      (A 'CLPA' must be performed at IPL time for this PTF
                                                       to become active.).
```

DOC holds suppressed

HOLDDATA Summary Reports...

Summary Report of HOLDs

```
SUMMARY OF BYPASSED AND UNRESOLVED HOLD REASON REPORT FOR APPLY CHECK PROCESSING

NOTE: SEE THE HOLDDATA REPORT OF UNRESOLVED HOLD REASON IDS TO DETERMINE HOLDS CAUSING TERMINATIONS.
      SEE THE HOLDDATA REPORT OF BYPASSED HOLD REASON IDS TO DETERMINE HOLDS THAT WERE BYPASSED.

TYPE      REASON ID  REPORT      SYSMODS AFFECTED
------    ---------  ----------  -------------------------------------------------------------------------
ERROR     AW49434    UNRESOLVED  HBB6606

          AW50061    UNRESOLVED  UW80059  UW80061

          AW50185    UNRESOLVED  UW80552

SYSTEM    ACTION     BYPASSED    UZ12345  UZ34567

          DOC        BYPASSED    UZ12345

          IPL        BYPASSED    UZ54321
```

New IPL reason id

Apply Maintenance from Down-level System

```
//SMPAPZ02 JOB (999,POK),'CONWAY',CLASS=A,MSGCLASS=T,
// REGION=0M,TIME=1440,NOTIFY=&SYSUID
/*JOBPARM L=9999,SYSAFF=SC69
//JOBLIB DD DISP=SHR,DSN=OS390CB.Z02RZ1.MIGLIB ◄── (APF authorized)
//S1       EXEC PGM=GIMSMP,
//         PARM='PROCESS=WAIT',
//         DYNAMNBR=120
//*MPCSI   DD DISP=SHR,DSN='OS390CB.R2CB01.CSI'
//SMPCSI   DD DISP=SHR,DSN='ZOSR02.GLOBAL.CSI'
//* SET    BOUNDARY (MVST111)
//SMPCNTL  DD *
  SET    BOUNDARY (MVST100)
                      .
  APPLY
         SELECT(UW81642
                     )
         BYPASS(   HOLDSYSTEM
                 )
         JCLINREPORT
         GROUPEXTEND
         RETRY(YES)  CHECK .
/*
```

---

z/OS Version 1 Release 1

SNA Multiple Console Support (SMCS)

SMCS Consoles

⚠ SMCS consoles are MCS consoles that use VTAM services for input and output

⚠ SMCS consoles can be real 3270-type devices, but they can be 3270 emulators such as IBM Personal Communications

⚠ SMCS supports VTAM LU Type 0 or Type 2

SMCS Overview

⚠ SMCS is a new type of console
  ➢ Uses SecureWay Communication Server for I/O
    – To a console instead of direct I/O to console device
⚠ SMCS is written as a VTAM application
⚠ SMCS is first provided in z/OS V1R1
⚠ SMCS consoles look and feel just like MCS consoles
  ➢ Operators need minimal adjustment to console type
⚠ 3174 Control Units still is use, MCS is supported
  ➢ SMCS and MCS consoles can coexist within a system or sysplex
⚠ By using SMCS consoles, customers are no longer required to have a 3174 Control Unit for systems at z/OS V1R1 or higher

Enhancements to MCS

⚔ Screen sizes

➤ MCS can use any screen size

⚔ Out-Of-Line Areas

➤ MCS enhanced to refresh the OOL when refreshing the rest of the screen

⚔ LOGON

➤ Now, a console can override the system specification with the LOGON keyword on the CONSOLE statement of CONSOLxx

– LOGON(DEFAULT) indicates that the console should use the LOGON value specified on the DEFAULT statement

D C Console Command

⚔ DISPLAY CONSOLES displays the LOGON value of a console:

```
IEE889I 15.39.51 CONSOLE DISPLAY
 MSG: CURR=1081 LIM=1500 RPLY:CURR=0     LIM=10    SYS=P01        PFK=01
   CONSOLE/ALT         ID  -------------- SPECIFICATIONS ---------------
   MSTR608/CON2        01  COND=M       AUTH=MASTER      NBUF=0    UD=Y
    03E0                   AREA=Z             MFORM=S
    P01                    DEL=RD   RTME=1/4    RNUM=25    SEG=19    CON=N
                           USE=FC   LEVEL=ALL             PFKTAB=01
                           ROUTCDE=ALL
                           LOGON=OPTIONAL
                           MONITOR=JOBNAMES
```

<u>LOGON Modes</u>
Required
Optional
Auto
Default

CONSOLxx Member

```
CONSOLE   DEVNUM(SMCS)
        NAME(CON1)
        ALTGRP(GROUP1)
        AREA(NONE)
        AUTH(MASTER)
        DEL(R)
        LOGON(OPTIONAL)
        RNUM(20)
        RTME(1/4)
        MFORM(T,S,J)
CONSOLE   DEVNUM(SMCS)
        NAME(CON2)
        ALTGRP(GROUP1)
        AUTH(MASTER)
        DEL(R)
        LOGON(REQUIRED)
        RNUM(20)
        RTME(1/4)
        MFORM(T,S,J)
```

Optional is the default

Use required when security is needed

SMCS Consoles can not do

⚠ SMCS consoles support most functions of MCS

- ➤ Synchronous WTO/R (DCCF) not supported
- ➤ SMCS consoles are not available during NIP
- ➤ SMCS consoles require VTAM to be active
- ➤ SMCS consoles must be activated differently than MCS consoles
  - – No - VARY CONSOLE and VARY CN,ONLINE
- ➤ SMCS does not support output-only (message stream and status display) consoles
- ➤ SMCS does not support printer consoles, and cannot be used as hardcopy devices

What SMCS can do

- SMCS consoles can do just about everything:
  - They support all of the CONTROL (K) commands
  - They can be the sysplex master console
  - They can go through console switch processing.
  - They can be removed by IEARELCN
  - They can be logged on
  - They can receive route codes, UD messages, etc
  - They can issue commands
  - They have all of the same control blocks (UCMEs, etc)
  - They are included in the 99 console limit
  - They must be defined in CONSOLxx at IPL time
  - They have the same set of valid and invalid characters

Activating an SMCS console

- Assuming that SMCS is installed on a system and some SMCS consoles are defined, there are several ways that an SMCS console can activate

- Operator or system programmer can go to a terminal, or telnet to the system, etc., to get to an active VTAM logon screen.

- The person would then log on to the SMCS application and get a 'SMCS Console Selection' screen

Activating an SMCS console

```
                        SMCS CONSOLE SELECTION

Enter the Console Name you want to access and press ENTER.

CONSOLE NAME ===> _____  (Required. This name must have been defined as an
                            SMCS console in CONSOLxx at IPL).


You are attempting to access:

  SYSPLEX:  PLEX1    SYSTEM:  SYS02




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"Restricted Materials of IBM"
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All rights reserved.

PF3/15=LOGOFF
```

Activating an SMCS Console

```
IEE187I ENTER LOGON PARAMETERS
LOGON           PASSWORD
GROUP           SECLABEL
IEE163I MODE= RD
```

Deactivating an SMCS console

⚠ Operator issues the LOGOFF command at the console, the console is deactivated

  ➤ VARY consname,OFFLINE can be used

  ➤ VARY CN(consname),OFFLINE can also be used

⚠ SMCS consoles deactivated by the system when VTAM or the SMCS application is deactivated

Installation - CONSOLxx

⚠ SMCS supports VTAM Generic Resource names

⚠ Operator to specify a generic name for SMCS

  ➤ VTAM selects the most appropriate system

  ➤ Operator needs to know which system

⚠ VTAM Generic Resources:

  ➤ System must be part of a Parallel Sysplex (CF used)

  ➤ CF must have the Generic Resource structure

    – Default name of the structure is ISTGENERIC.

  ➤ VTAM must be an APPN node

Generic Resource Example

Coupling Facility

Sysplex

Generic
Applid: SMCS

Network

User can pick specific applid (e.g., SMC01) or the generic applid (e.g., SMCS).
If the generic, VTAM routes the connection to the most appropriate SMCS application in the sysplex.

VTAM
Sysname: **SC63**
Applid: **SMCS01**

VTAM
Sysname: **SC64**
Applid: **SMCS02**

VTAM
Sysname: **SC65**
Applid: **SMCS03**
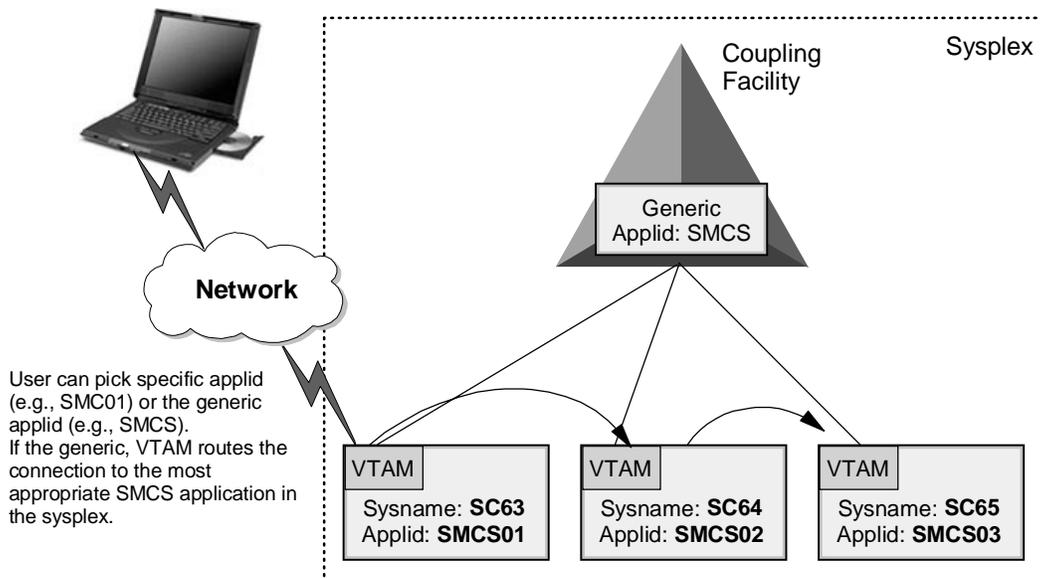
Mixed-Sysplex

⚠ If z/OS V1R1 (or higher) systems are in the same sysplex as OS/390 systems

  ➤ Consoles component requires that coexistence APAR OW44014 be applied to the OS/390 systems, **even if SMCS is not being used**.

  ➤ APAR OW44014 provides coexistence support at OS/390 V2R6 and above

⚠ OS/390 systems, even with APAR OW44014 applied, cannot use SMCS consoles.

Operator Commands

```
D C,SMCS

IEE047I 17.25.41 CONSOLE DISPLAY 322
GENERIC=*NONE*
SYSTEM    APPLID   SMCS STATUS
SC64      SCSMCS64 WAITING FOR SMCS APPLID ACTIVATION
SC63      SCSMCS63 WAITING FOR SMCS APPLID ACTIVATION
SC65      SCSMCS65 ACTIVE
```

```
                                        OPTIONAL
                                        AUTO
          VARY CN(consname),LOGON=      REQUIRED
                                        DEFAULT
```

Display Console Command

```
IEE889I 15.39.51 CONSOLE DISPLAY
 MSG: CURR=1081 LIM=1500 RPLY:CURR=0    LIM=10   SYS=P01       PFK=01
  CONSOLE/ALT        ID  -------------- SPECIFICATIONS ---------------
  MSTR608/CON2       01  COND=M      AUTH=MASTER      NBUF=0    UD=Y
   03E0                  AREA=Z          MFORM=S
   P01                   DEL=RD   RTME=1/4   RNUM=25   SEG=19   CON=N
                         USE=FC   LEVEL=ALL            PFKTAB=01
                         ROUTCDE=ALL
                         LOGON=OPTIONAL
                         MONITOR=JOBNAMES
  SMCS1              03  COND=A,SM  AUTH=MASTER      NBUF=0    UD=N
   SMCS3223              AREA=Z          MFORM=M
   P01                   DEL=RD   RTME=1/4   RNUM=1    SEG=39   CON=N
                         USE=FC   LEVEL=ALL            PFKTAB=01
                         ROUTCDE=ALL
                         LOGON=OPTIONAL
```

Network Routing Example

System S01
APPLID APPL01
VTAM

System S02
APPLID APPL02
VTAM

System S03
APPLID APPL03
VTAM

Network

Network

Network

LU S01LU001

LU S02LU001

LU S03LU001

Console CON1
on APPL02

Console CON2
on APPL03

Console CON3
on APPL03