



IBM eServer zSeries z990/z890

z990/z890 HCD/HCM, IOCP and CHPID Mapping

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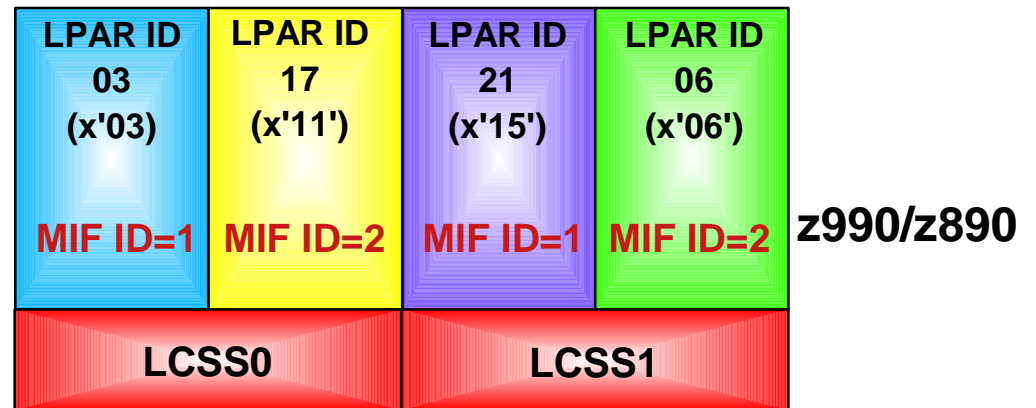


HCD Changes



Things to consider.....

- Basic Mode is NOT supported on the z990 or z890
- There are no default CHPIDs on the machine when configured or shipped
- Identifiers:
 - ▶ LPAR ID is specified on HMC Image Profile
 - ▶ MIF ID is the same as the 'partition number' specified in HCD
 - ▶ No correlation between LPAR ID and the LCSS an LPAR runs under
 - There can be LPARs in LCSS0 with LPAR ID > x'F'
 - There can be LPARs in LCSS1-LCSS3 with LPAR ID <= x'F'
 - ▶ LPAR ID is not related to MIF ID
 - ▶ Note that there is a system generated number not under the user's control

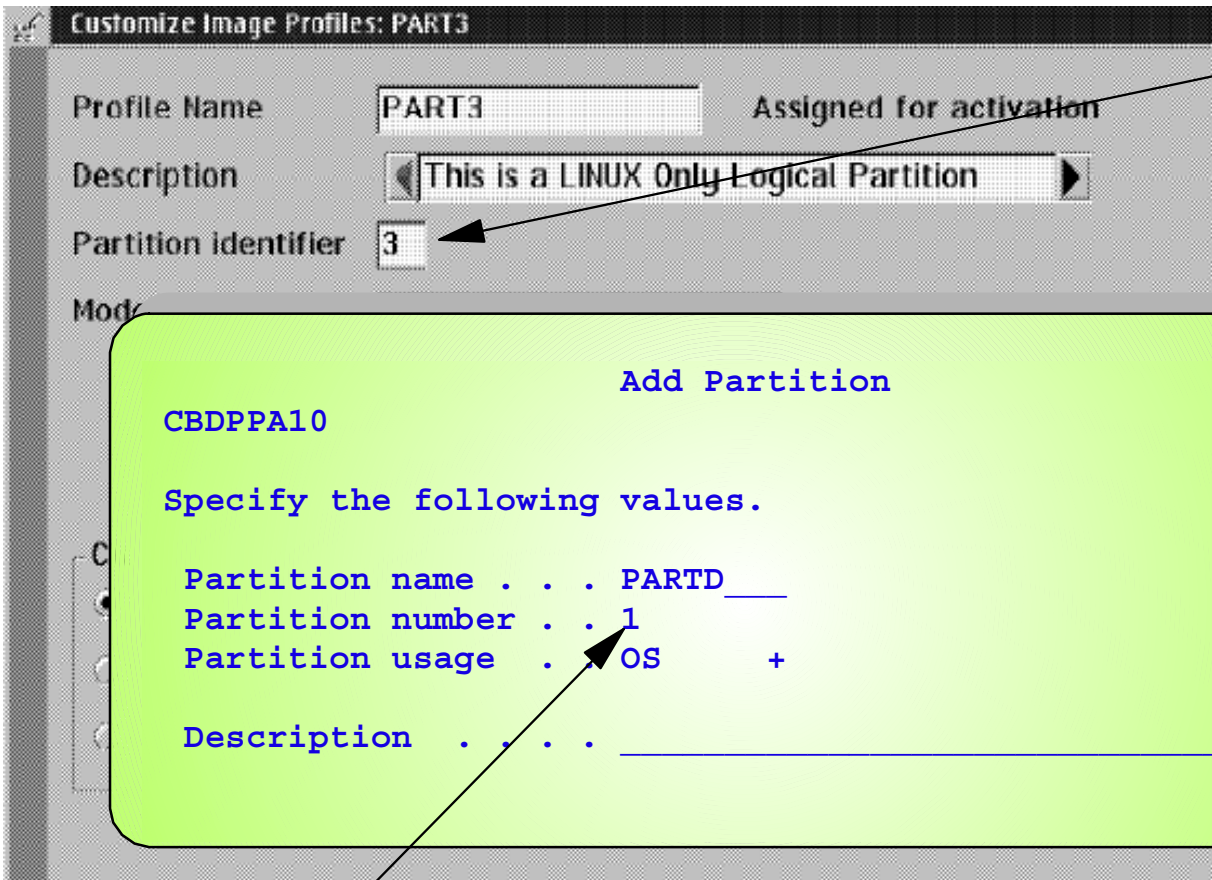


LPAR Identifiers...a better picture



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HMC



- Logical Partition Identifier
 - ▶ Non-z990/z890 - 0-F
 - ▶ z990/z890 - 0-3F

HCD

MIF image id - 1-F (non-z990/890 and z990/890)

- System generated number
 - ▶ Non-z990/890 - same as MIF image id
 - ▶ z990/890 - 1-1E - not specifiable

Functions based on Release



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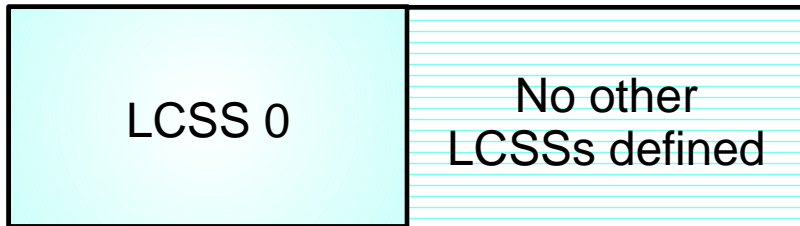
- No restrictions on a non-z990/z890 processor
 - ▶ Dynamic I/O works like it does today with no restrictions
- On a z990/z890 processor
 - ▶ OS/390[®] R10 and z/OS[™] 1.2-1.4 with compatibility function
 - Can use HCD to create an I/O configuration that consists of multiple CSSs
 - Can only do a hardware ACTIVATE for changes for LCSS 0 only.
 - Resources being changed must not be defined to LCSS 1. Otherwise, a POR is required or do the hardware ACTIVATE from a partition with the z/OS 1.4 exploitation feature
 - Software activate can be done regardless of the number of LCSSs defined
 - DCM functions properly even if LPAR cluster spans LCSSs
 - ▶ z/OS 1.4+ with exploitation feature
 - Full H/W ACTIVATE support with multiple LCSSs

Dynamic I/O for Compatibility



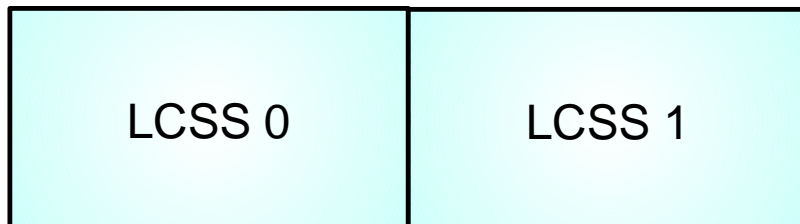
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If only LCSS 0 is defined, then z/OS with the z990/z890 compatibility function has full dynamic I/O capability for H/W changes



Add/delete/modify CHPID - LCSS 0
 Add/delete/modify CU - LCSS 0
 Add/delete/modify device - LCSS 0

If more than one LCSS is defined, then z/OS with the z990/z890 compatibility function cannot make H/W changes to LCSS 1

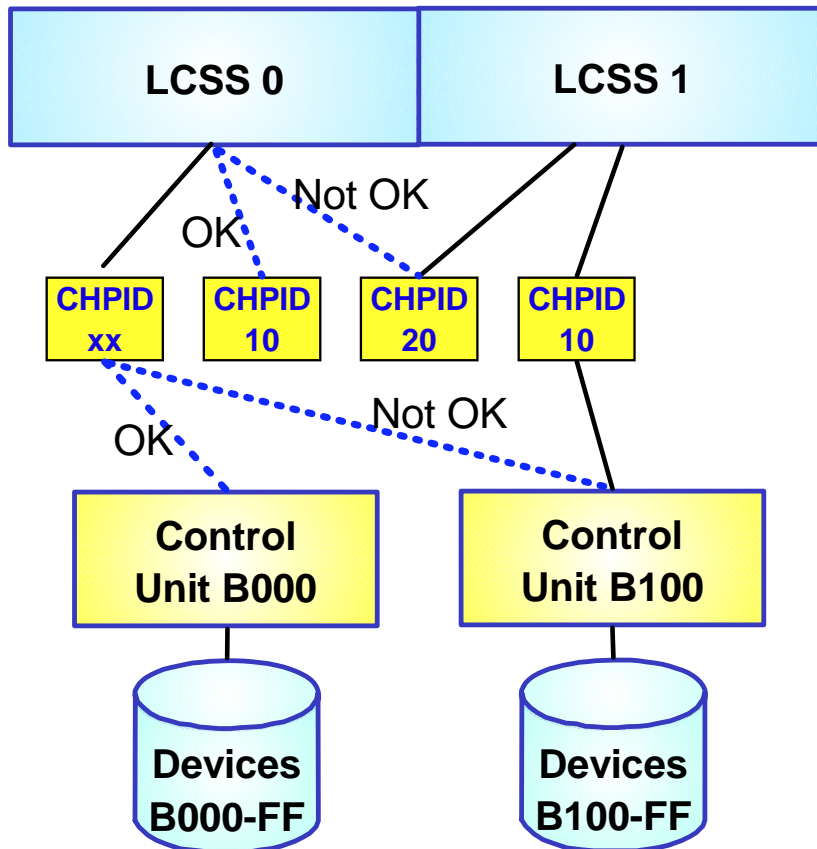


~~Add/delete/modify CHPID - LCSS 1
 Add/delete/modify CU - LCSS 1
 Add/delete/modify device - LCSS 1~~



Dynamic I/O for Compatibility

If more than one LCSS is defined, resources can be added to LCSS0 (or modify or delete) as long as resources are not defined to another LCSS



Allowed- Add CHPID 10 to LCSS0 (non-spanned)

Not Allowed - Add CHPID 20 to LCSS0 (already defined to LCSS1)

Allowed- Add CU B000 and devices B000-FF to LCSS 0

Not Allowed - Add CU B100 and devices B100-FF to LCSS 0



HCD - Old H/W Definition Sequence

- Define processor

- ▶ Define partitions

- ▶ Define channel paths

- Define control units

- Define devices

-
- Partition name, number, usage (OS or CF)
 - Only if processor in LPAR mode

-
- CHPID type, operation mode switch connection
 - Candidate and access lists (i.e. which partitions can use CHPID)

-
- CU number, type, channel path connections (CHPID and link addr)

-
- Device number, type, CU numbers
 - Channel subsystem data - preferred path candidate list (i.e. which partition can access device)
 - Operating system data - offline at IPL, dynamic

HCD - z990/z890 H/W Definition Sequence

→ Not migrating an existing definition



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■ Define processor 

- Only LPAR mode allowed
- Number of channel subsystems

▶ Define channel subsystems 

- CSS id (0-3), description, max devices

– Define partitions 

- Partition names may not be duplicated across CSSs
- Partition number = MIF image id in range of 1-F, unique within LCSS

– Define channel paths 

- CHPIDs unique only within a LCSS
- Spanned channels - access and candidate lists are by LCSS and partition
- Physical channel id must be specified to map logical CHPID to physical hardware

■ Define control units 

- CHPID.link combinations must be specified for each LCSS

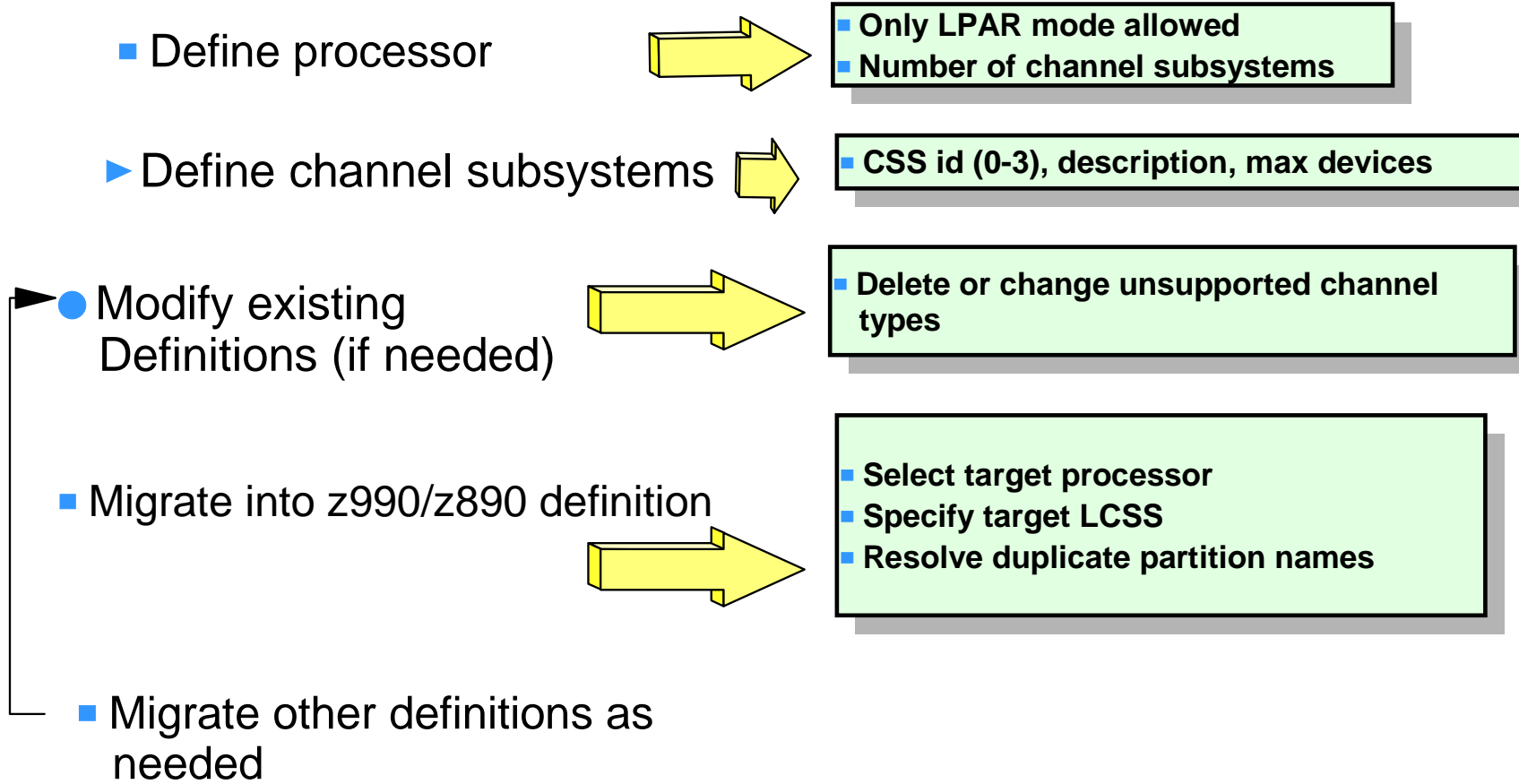
■ Define devices 

- Channel subsystem data - preferred path and candidate lists must be specified for each LCSS



HCD - z990/z890 H/W Definition Sequence

→ Migrating existing definition(s)





HCD Migration Example z990 Used in Example....applies to z890



z/OS V1.4 HCD

Command ==>

Hardware Configuration

Select one of the following.

1. Define, modify, or view configuration data
2. Activate or process configuration data
3. Print or compare configuration data
4. Create or view graphical configuration report
5. Migrate configuration data
6. Maintain I/O definition files
7. Query supported hardware and installed UIMs
8. Getting started with this dialog
9. What's new in this release

For options 1 to 5, specify the name of the IODF to be used.

I/O definition file . . . 'HUGHES.IODF07.WORK' +

No changes to Initial Panel

F1=Help F2=Split F3=Exit F4=Prompt F9=Swap F12=Cancel
F22=Command



```

              z/OS V1.4 HCD
C  _____ Define, Modify, or View Configuration Data _____
      Select type of objects to define, modify, or view data.
S      3_ 1. Operating system configurations
      consoles
      1      system-defined generics
      EDTs
      esoterics
      user-modified generics
      2. Switches
      ports
      switch configurations
      port matrix
      3. Processors
      channel subsystems
F      partitions
      channel paths
I      4. Control units
      5. I/O devices
      F1=Help      F2=Split      F3=Exit      F9=Swap      F12=Cancel

```

Define new Processor via Option 3

```

F1=Help      F2=Split      F3=Exit      F4=Prompt      F9=Swap      F12=Cancel
F22=Command

```



Goto Filter Backup Query Help

Processor List Row 1 of 3 More: >

Command ==> _____ Scroll ==> PAGE

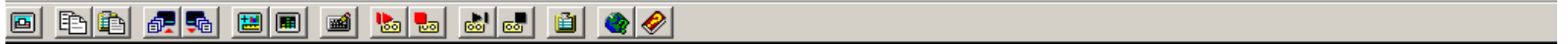
Select one or more processors, then press Enter. To add, use F11.

/	Proc. ID	Type +	Model +	Mode+	Serial-# +	Description
—	CF	2064	100	LPAR	_____	Standalone Coupling Facility
—	Z900A	2064	107	LPAR	_____	z900 Processor
—	Z900B	2064	110	LPAR	_____	z900 Processor

***** Bottom of data *****

Use PF11 to add

F1=Help F2=Split F3=Exit F4=Prompt F5=Reset F7=Backward
 F8=Forward F9=Swap F10=Actions F11=Add F12=Cancel F13=Instruct
 F20=Right F22=Command



Goto Filter Backup Query Help
Add Processor

Specify or revise the following values.

Processor ID z990_____

Processor type 2084_____ +

Processor model b16_____ +

Configuration mode LPAR +

Number of channel subsystems . . 2 +

Serial number _____

Description _____

Specify SNA address only if part of an S/390 microprocessor cluster:

Network name _____ +

CPC name _____ +

F1=Help F2=Split F3=Exit F4=Prompt F5=Reset F9=Swap
F12=Cancel

Enter data and press enter

F1=Help F2=Split F3=Exit F4=Prompt F5=Reset F7=Backward
F8=Forward F9=Swap F10=Actions F11=Add F12=Cancel F13=Instruct
F20=Right F22=Command


```
Goto Filter Backup Query Help
-----
Processor List Row 1 of 4 More: >
Command ==> _____ Scroll ==> PAGE
Select one or more processors, then press Enter. To add, use F11.

/ Proc. ID Type + Model + Mode+ Serial-# + Description
_ CF 2064 100 LPAR _____ Standalone Coupling Facility
_ Z900A 2064 107 LPAR _____ z900 Processor
_ Z900B 2064 110 LPAR _____ z900 Processor
_ Z990 2084 B16 LPAR _____
***** Bottom of data *****

F1=Help F2=Split F3=Exit F4=Prompt F5=Reset F7=Backward
F8=Forward F9=Swap F10=Actions F11=Add F12=Cancel F13=Instruct
F20=Right F22=Command
```

z990 Defined

```

  Goto  Filter  Backup  Query  Help
  -----
  Command ==>
  Select one or

  / Proc. ID Ty
  _ CF      20
  _ Z900A   20
  _ Z900B   20
  / Z990    20
  *****

  12  1. Add like . . . . . (a)
      2. Repeat (Copy) processor configurations (r)
      3. Change . . . . . (c)
      4. Prime serial number . . . . . (i)
      5. Delete . . . . . (d)
      6. View processor definition . . . . . (v)
      7. View related CTC connections . . . . . (k)
      8. Work with partitions . . . . . (SMP) (p)
      9. Work with attached channel paths (SMP) (s)
     10. Work with attached devices . . . . . (SMP) (u)
     11. Copy to channel subsystem . . . . . (SMP) (y)
     12. Work with channel subsystems . . . . . (XMP) (p,s)

  F1=Help      F2=Split      F3=Exit      F9=Swap      F12=Cancel
  
```

Select z990 processor and option 12 to look at LCSS information

```

  F1=Help      F2=Split      F3=Exit      F4=Prompt      F5=Reset      F7=Backward
  F8=Forward   F9=Swap      F10=Actions  F11=Add        F12=Cancel    F13=Instruct
  F20=Right    F22=Command
  
```

```
Goto Backup Query Help
-----
Channel Subsystem List                               Row 1 of 2
Command ==> _____ Scroll ==> PAGE
Select one or more channel subsystems, then press Enter. To add, use F11.
Processor ID . . . : Z990

  CSS Max number
/ ID of devices + Description
= 0 64512
_ 1 64512
***** Bottom of data *****
```

LCSSs listed and value for
MAXDEVICES

F1=Help F2=Split F3=Exit F4=Prompt F5=Reset F7=Backward
F8=Forward F9=Swap F10=Actions F11=Add F12=Cancel F13=Instruct
F22=Command



Goto Backup Query Help

Channel Subsystem List

Row 1 of 2

Command ==> _____ Scroll ==> PAGE

Select one or more channel subsystems, then press Enter. To add, use F11.

Processor ID . . . : Z990

	CSS Max number	ID of devices + Description
c	0	64512
_	1	64512

***** Bottom of data *****

Use "c" fastpath to look at the LCSS defintion and change/update if needed

F1=Help	F2=Split	F3=Exit	F4=Prompt	F5=Reset	F7=Backward
F8=Forward	F9=Swap	F10=Actions	F11=Add	F12=Cancel	F13=Instruct
F22=Command					



Goto Backup Query Help

Channel Subsystem List

Command ==> _____ Scroll ==> PAGE

Select one or more channel subsystems, then press Enter. To add, use F11.

Processor ID . . . : Z990

Change Channel Subsystem

/
c
_
*

Specify or revise the following values.

Processor ID : Z990

Channel subsystem ID . . : 0

Description Logical Channel Subsystem 0

Maximum number of devices 64512 +

F1=Help F2=Split F3=Exit F4=Prompt F5=Reset F9=Swap
F12=Cancel

Specify a value between 0 and 64512 (maximum allowed number of devices).
Actually defined devices for CSS Z990.0: 0.

F1=Help F2=Split F3=Exit F4=Prompt F5=Reset F7=Backward
F8=Forward F9=Swap F10=Instruct
F22=Command

Update as needed....

```
Session A - [32 x 80]
File Edit View Communication Actions Window Help
Goto Backup Query Help
-----
Channel Subsystem List                               Row 1 of 2
Command ==> _____ Scroll ==> PAGE
Select one or more channel subsystems, then press Enter. To add, use F11.
Processor ID . . . : Z990

  CSS Max number
/ ID of devices + Description
_ 0  64512      Logical Channel Subsystem 0
_ 1  49152      Logical Channel Subsystem 1
***** Bottom of data *****

After update.....

F1=Help      F2=Split      F3=Exit      F4=Prompt      F5=Reset      F7=Backward
F8=Forward   F9=Swap       F10=Actions  F11=Add        F12=Cancel    F13=Instruct
F22=Command

MÁ a 13/002
Connected to remote server/host wsc1.washington.ibm.com using port 23
```

Goto Filter Backup Query Help

Actions on selected processors

Command ==>

Select one or

/	Proc. ID	Ty
_	CF	20
/	Z900A	20
_	Z900B	20
_	Z990	20

Select by number or action code and press Enter.

- 11 1. Add like (a)
- 2. Repeat (Copy) processor configurations (r)
- 3. Change (c)
- 4. Prime serial number (i)
- 5. Delete (d)
- 6. View processor definition (v)
- 7. View related CTC connections (k)
- 8. Work with partitions (SMP) (p)
- 9. Work with attached channel paths (SMP) (s)
- 10. Work with attached devices . . . (SMP) (u)
- 11. Copy to channel subsystem . . . (SMP) (y)
- 12. Work with channel subsystems . . (XMP) (p,s)

F1=Help F2=Split F3=Exit F9=Swap F12=Cancel

From the processor List, select processor to be migrated and select option 11 on the menu.

F1=Help F2=Split F3=Exit F4=Prompt F5=Reset F7=Backward
 F8=Forward F9=Swap F10=Actions F11=Add F12=Cancel F13=Instruct
 F20=Right F22=Command

```
Session A - [32 x 80]
File Edit View Communication Actions Window Help
Goto Filter Backup Query Help
Identify Target IODF
C Specify the IODF to which the configuration data is to be repeated.
S Target IODF name . . '_HUGHES.IODF07.WORK' +
/
/ F1=Help      F2=Split     F3=Exit      F4=Prompt    F5=Reset     F9=Swap
/ F12=Cancel
-
- Z990B      2064      110      LPAR
***** Bottom of data *****
F1=Help      F2=Split     F3=Exit      F4=Prompt    F5=Reset     F7=Backward
F8=Forward   F9=Swap      F10=Actions  F11=Add      F12=Cancel   F13=Instruct
F20=Right    F22=Command
```

Since migrating within the same IODF, no need to change the target IODF. One could have defined the z990 in a different IODF.



Goto Filter Backup Query Help

Identify Target IODF

C Specify the IODF to which the configuration data is to be repeated.

S Target IODF name . . 'HUGHES.IODF07.WORK' +

Copy to Channel Subsystem

/ Specify or revise the following values.

Z9

Source processor:

Processor ID : Z900A z900 Processor

Target channel subsystem:

Processor ID Z990 +

Channel subsystem ID . . 0 +

F1=H
F12=C

Select the target processor and the LCSS

F1=Help F2=Split F3=Exit F4=Prompt F5=Reset F7=Backward
F8=Forward F9=Swap F10=Actions F11=Add F12=Cancel F13=Instruct
F20=Right F22=Command



Goto Filter Backup Query Help

Message List

Save Query Help

Row 1 of 196

Command ==>

Scroll ==> PAGE

Messages are sorted by severity. Select one or more, then press Enter.

/	Sev	Msg. ID	Message Text
#	E	CBDA154I	Channel path type BL is not supported by channel path ID 0.01.
#	E	CBDA154I	Channel path type BL is not supported by channel path ID 0.02.
#	E	CBDA154I	Channel path type BL is not supported by channel path ID 0.04.
#	E	CBDA154I	Channel path type BL is not supported by channel path ID 0.05.
#	E	CBDA154I	Channel path type BL is not supported by channel path ID 0.06.

F1=Help F2=Split F3=Exit F4=Prompt F5=Reset
 F7=Backward F8=Forward F9=Swap F10=Actions F12=Cancel
 F13=Instruct F22=Command

Migration failed-source processor has unsupported channel types. Those must be changed before migrating.

F1=Help F2=Split F3=Exit F4=Prompt F5=Reset F6=Right F7=Backward F8=Forward F9=Swap F10=Actions F11=Add F12=Cancel F13=Instruct
F20=Right F22=Command

Session A - [32 x 80]

File Edit View Communication Actions Window Help

Goto Filter Backup Query Help

Message List

Save Query Help

Row 1 of 25

Command ==> _____ Scroll ==> PAGE

Messages are sorted by severity. Select one or more, then press Enter.

/	Sev	Msg. ID	Message Text
_	W	CBDG441I	The coupling facility connection between channel path F0 of processor Z900A and channel path 00 of processor CF is not copied.
#			
#			
_	W	CBDG441I	The coupling facility connection between channel path F1 of processor Z900A and channel path 01 of processor CF is not copied.
#			
#			
_	W	CBDG441I	The coupling facility connection between channel path F2 of processor Z900A and channel path F2 of processor Z990B is not copied.
#			
#			
_	W	CBDG441I	The coupling facility connection between channel path F3 of processor Z900A and channel path F3 of processor
#			

F1=Help F2=Split F3=Exit F4=Prompt F5=Reset
 F7=Backward F8=Forward F9=Swap F10=Actions F12=Cancel
 F13=Instruct F22=Command

All Coupling Link connections will need to be reconnected in a later step

F1=Help F
 F8=Forward F
 F20=Right F22=Command

MA a

06/017

Connected to remote server/host wsc1.washington.ibm.com using port 23



Goto Filter Backup Query Help

Message List

Save Query Help

Row 23 of 25

Command ==>

Scroll ==> PAGE

Messages are sorted by severity. Select one or more, then press Enter.

/ Sev Msg. ID Message Text

of processor Z900A and channel path FE of processor

Z900A is not copied.

_ I CBDG271I Requested action on object Z900A successfully processed.

***** Bottom of data *****

F1=Help

F2=Split

F3=Exit

F4=Prompt

F5=Reset

F7=Backward

F8=Forward

F9=Swap

F10=Actions

F12=Cancel

F13=Inst

But, the migration was successful....no "E" messages

F1=Help

F2=Split

F3=Exit

F4=Prompt

F5=Reset

F7=Backward

F8=Forward

F9=Swap

F10=Actions

F11=Add

F12=Cancel

F13=Instruct

F20=Right

F22=Command

```

  Goto  Filter  Backup  Query  Help
  -----
  Command ==>
  Select one or

  / Proc. ID Ty
  _ CF      20
  / Z900A   20
  _ Z900B   20
  _ Z990    20
  *****

  5_  1.  Add like . . . . . (a)
      2.  Repeat (Copy) processor configurations (r)
      3.  Change . . . . . (c)
      4.  Prime serial number . . . . . (i)
      5.  Delete . . . . . (d)
      6.  View processor definition . . . . . (v)
      7.  View related CTC connections . . . . . (k)
      8.  Work with partitions . . . . . (SMP) (p)
      9.  Work with attached channel paths (SMP) (s)
     10. Work with attached devices . . . (SMP) (u)
     11. Copy to channel subsystem . . . (SMP) (y)
     12. Work with channel subsystems . . (XMP) (p,s)

  F1=Help      F2=Split      F3=Exit      F9=Swap      F12=Cancel
  
```

Delete the migrated processor....

```

  F1=Help      F2=Split      F3=Exit      F4=Prompt      F5=Reset      F7=Backward
  F8=Forward    F9=Swap      F10=Actions   F11=Add        F12=Cancel    F13=Instruct
  F20=Right    F22=Command
  
```



Goto Filter Backup Query Help

Confirm Delete Processor

Row 1 of 1

Command ==> Scroll ==> PAGE AGE

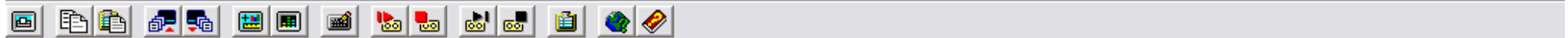
Scroll forward to view the complete list of processors to be deleted. Press ENTER to confirm delete request. Press F12 to cancel delete request.

Processor ID	Type	Model	Description
Z900A	2064	107	z900 Processor

***** Bottom of data *****

Confirm delete.....

F1=Help F2=Split F3=Exit F4=Prompt F5=Reset F7=Backward
 F8=Forward F9=Swap F10=Actions F11=Add F12=Cancel F13=Instruct
 F20=Right F22=Command



```

Goto  Filter  Backup  Query  Help
-----
Command ==>

Select one or

/ Proc. ID Ty
_ CF      20
/ Z900B   20
_ Z990    20
*****

          11  1.  Add like . . . . . (a)
          2.  Repeat (Copy) processor configurations (r)
          3.  Change . . . . . (c)
          4.  Prime serial number . . . . . (i)
          5.  Delete . . . . . (d)
          6.  View processor definition . . . . . (v)
          7.  View related CTC connections . . . . . (k)
          8.  Work with partitions . . . . . (SMP) (p)
          9.  Work with attached channel paths (SMP) (s)
         10.  Work with attached devices . . . . . (SMP) (u)
         11.  Copy to channel subsystem . . . . . (SMP) (y)
         12.  Work with channel subsystems . . . . . (XMP) (p,s)

F1=Help      F2=Split      F3=Exit      F9=Swap      F12=Cancel

```

Migrate second processor into LCSS1...for the example

F1=Help F2=Split F3=Exit F4=Prompt F5=Reset F7=Backward
F8=Forward F9=Swap F10=Actions F11=Add F12=Cancel F13=Instruct
F20=Right F22=Command

Session A - [32 x 80]

File Edit View Communication Actions Window Help

Goto Filter Backup Query Help

Identify Target IODF

C Specify the IODF to which the configuration data is to be repeated.

S Target IODF name . . 'HUGHES.IODF51.WORK' +

/ Copy to Channel Subsystem

/

Specify or revise the following values.

Source processor:

Processor ID : Z900B z900 Processor

Target channel subsystem:

Processor ID : _____ +

Channel subsystem ID . . 1 +

F1=Help F2=Split F3=Exit F4=Prompt F5=Reset F9=Swap

F12=Cancel

LCSS1 selected

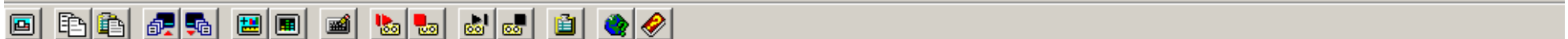
F1=Help F2=Split F3=Exit F4=Prompt F5=Reset F7=Backward

F8=Forward F9=Swap F10=Actions F11=Add F12=Cancel F13=Instruct

F20=Right F22=Command

MA a 18/035

Connected to remote server/host wsc1.washington.ibm.com using lu/pool TCPA0009 and port 23



Goto Filter Backup Query Help

Message List

Save Query Help

Row 1 of 7

Command ==> Scroll ==> PAGE

Messages are sorted by severity. Select one or more, then press Enter.

```

/ Sev Msg. ID Message Text
--
# W CBDG441I The coupling facility connection between channel path F0
# of processor Z990B and channel path 02 of processor CF
# is not copied.
- W CBDG441I The coupling facility connection between channel path F1
# of processor Z990B and channel path 03 of processor CF
# is not copied.
- I CBDG271I Requested action on object Z990B successfully processed.
***** Bottom of data *****

```

F1=Help F2=Split F3=Exit F4=Prompt F5=Reset
 F7=Backward F8=Forward F9=Swap F10=Actions F12=Cancel
 F13=Instruct F22=Command

Results of migration of second processor into LCSS1. Again, the CF connections will need to be connected in a later step.

F1=Help F7=Backward
 F8=Forward F9=Swap F10=Actions F11=Add F12=Cancel F13=Instruct
 F20=Right F22=Command

```
Goto Filter Backup Query Help
-----
Actions on selected processors

Command ==>
Select one or

/ Proc. ID Ty
_ CF      20
/ Z900B   20
_ Z990    20
*****

5_ 1. Add like . . . . . (a)
   2. Repeat (Copy) processor configurations (r)
   3. Change . . . . . (c)
   4. Prime serial number . . . . . (i)
   5. Delete . . . . . (d)
   6. View processor definition . . . . . (v)
   7. View related CTC connections . . . . . (k)
   8. Work with partitions . . . . . (SMP) (p)
   9. Work with attached channel paths (SMP) (s)
  10. Work with attached devices . . . (SMP) (u)
  11. Copy to channel subsystem . . . (SMP) (y)
  12. Work with channel subsystems . . (XMP) (p,s)

F1=Help      F2=Split      F3=Exit      F9=Swap      F12=Cancel
```

Delete the second processor that was migrated

```
F1=Help      F2=Split      F3=Exit      F4=Prompt    F5=Reset     F7=Backward
F8=Forward   F9=Swap      F10=Actions  F11=Add      F12=Cancel   F13=Instruct
F20=Right   F22=Command
```



Goto Filter Backup Query Help

Processor List Row 1 of 2 More: >

Command ==> _____ Scroll ==> PAGE

Select one or more processors, then press Enter. To add, use F11.

/	Proc. ID	Type +	Model +	Mode+	Serial-# +	Description
_	CF	2064	100	LPAR	_____	Standalone Coupling Facility
_	Z990	2084	B16	LPAR	_____	_____

***** Bottom of data *****

Both processors migrated and deleted.

F1=Help F2=Split F3=Exit F4=Prompt F5=Reset F7=Backward
 F8=Forward F9=Swap F10=Actions F11=Add F12=Cancel F13=Instruct
 F20=Right F22=Command

```

-----
Goto  Filter  Backup  Query  Help
-----
Actions on selected processors
-----
Command ==>
Select one or

/ Proc. ID Ty
_ CF      20
/ Z990    20
*****

12  1.  Add like . . . . . (a)
    2.  Repeat (Copy) processor configurations (r)
    3.  Change . . . . . (c)
    4.  Prime serial number . . . . . (i)
    5.  Delete . . . . . (d)
    6.  View processor definition . . . . . (v)
    7.  View related CTC connections . . . . . (k)
    8.  Work with partitions . . . . . (SMP) (p)
    9.  Work with attached channel paths (SMP) (s)
   10. Work with attached devices . . . . . (SMP) (u)
   11. Copy to channel subsystem . . . . . (SMP) (y)
   12. Work with channel subsystems . . . . . (XMP) (p,s)

F1=Help      F2=Split      F3=Exit      F9=Swap      F12=Cancel
    
```

Look at the LCSS results in the z990 after migration

```

F1=Help      F2=Split      F3=Exit      F4=Prompt      F5=Reset      F7=Backward
F8=Forward   F9=Swap       F10=Actions   F11=Add        F12=Cancel    F13=Instruct
F20=Right    F22=Command
    
```

```
Session A - [32 x 80]
File Edit View Communication Actions Window Help
Goto Backup Query Help
-----
Channel Subsystem List                               Row 1 of 2
Command ==> _____ Scroll ==> PAGE
Select one or more channel subsystems, then press Enter. To add, use F11.
Processor ID . . . : Z990

  CSS Max number
 / ID of devices + Description
 / 0 64512 Logical Channel Subsystem 0
_ 1 49152 Logical Channel Subsystem 1
***** Bottom of data *****

F1=Help      F2=Split    F3=Exit      F4=Prompt    F5=Reset     F7=Backward
F8=Forward   F9=Swap     F10=Actions  F11=Add     F12=Cancel   F13=Instruct
F22=Command

a                                                    12/004
Connected to remote server/host wsc1.washington.ibm.com using port 23
```

Select LCSS of interest.....0 in this example

Session A - [32 x 80]

File Edit View Communication Actions Window Help

Goto Backup Query Help

Command ==>

Select one or

Processor ID

CSS	Max num
/ ID of devi	
/ 0	64512
_ 1	49152

Actions on selected channel subsystems

Select by number or action code and press Enter.

7_	1. Add like (a)
	2. Repeat (Copy) channel subsystem . . . (r)
	3. Copy to processor (y)
	4. Change (c)
	5. Delete (d)
	6. Work with partitions (p)
	7. Work with attached channel paths . . . (s)
	8. Work with attached devices (u)

*

F1=Help F2=Split F3=Exit F9=Swap F12=Cancel

Look at channel paths

F1=Help	F2=Split	F3=Exit	F4=Prompt	F5=Reset	F7=Backward
F8=Forward	F9=Swap	F10=Actions	F11=Add	F12=Cancel	F13=Instruct
F22=Command					

MA a

07/019

Connected to remote server/host wsc1.washington.ibm.com using port 23



Goto Filter Backup Query Help

Channel Path List Row 1 of 25 More: >

Command ==> _____ Scroll ==> PAGE

Select one or more channel paths, then press Enter. To add use F11.

Processor ID : Z990
Configuration mode . : LPAR
Channel Subsystem ID : 0 Logical Channel Subsystem 0

Table with columns: / CHPID, Type+, Mode+, DynEntry, Entry +, Sw, Port, Con, Mngd, Description. Rows include entries 00 through 23.

Channel List-left side

F1=Help
F8=Forward
F20=Right

F22=Command

Session A - [32 x 80]

File Edit View Communication Actions Window Help

Goto Filter Backup Query Help

Channel Path List Row 1 of 25 More: < >

Command ==> _____ Scroll ==> PAGE

Select one or more channel paths, then press Enter. To add, use F11.

Channel Subsystem ID : 0 Logical Channel Subsystem 0

1=LPAR1 2=LPAR2 3=CF01 4= 5=
 6= 7= 8= 9= A=
 B= C= D= E= F=

/	CHPID	Type+	Mode+	Mngd	I/O Cluster Name +	Partitions 0x																PCHID
						1	2	3	4	5	6	7	8	9	A	B	C	D	E	F		
00	CNC	SHR	No			a	a															
01	CNC	SHR	No			a	a															
02	CNC	SHR	No			a	a															
03	CNC	SHR	No			a	a															
12	CNC	SHR	No			a	a															
13	CNC	SHR	No			a	a															
14	CNC	SHR	No			a	a															
15	CNC	SHR	No			a	a															
16	CNC	SHR	No			a	a															
21	CTC	SHR	No			a	a															
22	CNC	SHR	No			a	a															
23	CNC	SHR	No			a	a															

F1=Help F2=Split F3=Exit F4=Prompt F5=Reset F7=Backward
 F8=Forward F9=Swap F10=Actions F11=Add F12=Cancel F13=Instruct
 F19=Left F20=Right F22=Command

MA a 14/002

Connected to remote server/host wsc1.washington.ibm.com using port 23

Channel List-right side

PCHID can be assigned here.....


```

Session A - [32 x 80]
File Edit View Communication Actions Window Help
Goto Filter Backup Query Help
Change Channel Path Definition
C Specify or revise the following values.
S Processor ID . . . . . : Z990
C Configuration mode . . . : LPAR
1 Channel Subsystem ID : 0 Logical Channel Subsystem 0
6 Channel path ID . . . . . 00 + PCHID . . . ____
B Channel path type . . . . . CNC +
/ Operation mode . . . . . SHR +
/ Managed . . . . . No (Yes or No) I/O Cluster ____ +
Description . . . . . _____
Specify the following values only if connected to a switch:
Dynamic entry switch ID 01 + (00 - FF)
Entry switch ID . . . . . 01 +
Entry port . . . . . 50 +
F1=Help F2=Split F3=Exit F4=Prompt F5=Reset F9=Swap
F12=Cancel
Or PCHID can be assigned for each CHPID by selecting
the Change Channel Path Definition option.
1
1
2
22 CNC SHR No a a _____
23 CNC SHR No a a _____
F1=Help F2=Split F3=Exit F4=Prompt F5=Reset F7=Backward
F8=Forward F9=Swap F10=Actions F11=Add F12=Cancel F13=Instruct
F19=Left F20=Right F22=Command
MA a 11 / 031
Connected to remote server/host wsc1.washington.ibm.com using port 23

```

Note of caution.....



IBM Washington
Systems Center

The CHPID Mapping Tool is **strongly** recommended
for assigning PCHIDs to CHPIDs.
HCD approach is extremely tedious, prone to error, and difficult to
use.



Prepare Input for CHPID Mapping Tool

Session A - [32 x 80]

File Edit View Communication Actions Window Help

z/OS V1.4 HCD

Command ==> _____

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Hardware Configuration

Select one of the following.

2_ 1. Define, modify, or view configuration data
2. Activate or process configuration data
3. Print or compare configuration data
4. Create or view graphical configuration report
5. Migrate configuration data
6. Maintain I/O definition files
7. Query supported hardware and installed UIMs
8. Getting started with this dialog
9. What's new in this release

For options 1 to 5, specify the name of the IODF to be used.

I/O definition file . . . 'HUGHES.IODF07.WORK' +

Select Option 2

F1=Help F2=Split F3=Exit F4=Prompt F9=Swap F12=Cancel
F22=Command

MA a 08/003

Connected to remote server/host wsc1.washington.ibm.com using port 23



z/OS V1.4 HCD

C Activate or Process Configuration Data

Select one of the following tasks.

- S 12 1. Build production I/O definition file
- 2 2. Build IOCDs
- 3. Build IOCP input data set
- 4. Create JES3 initialization stream data
- 5. View active configuration
- 6. Activate or verify configuration dynamically
- 7. Activate configuration sysplex-wide
- 8. Activate switch configuration
- 9. Save switch configuration
- F 10. Build I/O configuration statements
- I 11. Build and manage S/390 microprocessor IOCDs and IPL attributes
- 12. Build validated work I/O definition file

sed.

+

F1=Help F2=Split F3=Exit F9=Swap
F12=Cancel

Need to build a validated IODF...option 12

F1=Help F2=Split F3=Exit F4=Prompt F9=Swap F12=Cancel
F22=Command



z/OS V1.4 HCD

C Activate or Process Configuration Data

Message List

Save Query Help

Row 1 of 47

Command ==> Scroll ==> PAGE

Messages are sorted by severity. Select one or more, then press Enter.

/	Sev	Msg. ID	Message Text
_	E	CBDG432I	ICP channel path 0.FC of processor Z990 is not
#			connected. It must be connected to a channel path of
#			type ICP.
_	E	CBDG432I	ICP channel path 0.FD of processor Z990 is not
#			connected. It must be connected to a channel path of
#			type ICP.
_	E	CBDG432I	ICP channel path 0.FE of processor Z990 is not
#			connected. It must be connected to a channel path of
#			type ICP.
_	E	CBDG432I	ICP channel path 0.FF of processor Z990 is not
#			connected. It must be connected to a channel path of

F1=Help F2=Split F3=Exit F4=Prompt F5=Reset
 F7=Backward F8=Forward F9=Swap F10=Actions F12=Cancel
 F13=Instruct F22=Command

Possible error messages...must connect ICP channels

F1=Help
F22=Command

F2=S

F12=Cancel



z/OS V1.4 HCD

C Activate or Process Configuration Data

Message List

Save Query Help

Row 23 of 47

Command ==> Scroll ==> PAGE

Messages are sorted by severity. Select one or more, then press Enter.

Sev	Msg. ID	Message Text
#		should be connected to a channel path of type CFP.
W	CBDG483I	CFP channel path 0.F0 of processor Z990 is not connected. It should be connected to a channel path of type CFP.
W	CBDG483I	CFP channel path 0.F1 of processor Z990 is not connected. It should be connected to a channel path of type CFP.
W	CBDG483I	CFP channel path 0.F2 of processor Z990 is not connected. It should be connected to a channel path of type CFP.
W	CBDG483I	CFP channel path 0.F3 of processor Z990 is not connected. It should be connected to a channel path of type CFP.

F1=Help F2=Split F3=Exit F4=Prompt F5=Reset
 F7=Backward F8=Forward F9=Swap F10=Actions F12=Cancel
 F13=Instruct F22=Command

Possible warning messages....external links should be connected prior to exporting for the mapping tool.

F1=Help
F22=Comm



Other error messages

- Processor has unsupported channels
 - ▶ Parallel
 - ▶ OSA type CHPIDs
- Must change or delete unsupported channel types
 - ▶ BLK to CVC etc.
 - ▶ OSA to OSD or OSE
 - implies new OSA Express cards
- Migration could take a lot of time before it fails
 - ▶ irritating at least



Goto Filter Backup Query Help

Channel Path List Row 1 of 25 More: >

Command ==> _____ Scroll ==> PAGE

Select one or more channel paths, then press Enter. To add use F11.

Processor ID : Z990
Configuration mode . : LPAR
Channel Subsystem ID : 0 Logical Channel Subsystem 0

	CHPID	Type+	Mode+	DynEntry	Entry +	Sw	Port	Con	Mngd	Description
_	00	CNC	SHR	01	01	50		No		
_	01	CNC	SHR	01	01	51		No		
_	02	CNC	SHR	01	01	52		No		
_	03	CNC	SHR	01	01	53		No		
_	04	CNC	SHR	01	01	54		No		
_	05	CNC	SHR	01	01	55		No		
_	10	CNC	SHR	02	02	60		No		
_	11	CNC	SHR	02	02	61		No		
_	12	CNC	SHR	02	02	62		No		
_	13	CNC	SHR	02	02	63		No		
_	14	CNC	SHR	02	02	64		No		
_	15	CNC	SHR	02	02	65		No		
_	16	CNC	SHR	02	02	66		No		
_	21	CTC	SHR	01	01	11		No		
_	22	CNC	SHR	02	02	13		No		
_	23	CNC	SHR	01	01	16		No		

F1=Help F2=Split F3=Exit F4=Prompt F5=Reset F7=Backward
F8=Forward F9=Swap F10=Actions F11=Add F12=Cancel F13=Instruct
F20=Right

CHPID List-full



Goto Filter Backup Query Help

Channel Path List Filter Mode. More: >

Command ==> _____ Scroll ==> PAGE

Select one or more channel paths, then press Enter. To add use F11.

Processor ID : Z990
Configuration mode . : LPAR
Channel Subsystem ID : 0

Logical Channel Subsystem 0

	CHPID	Type+	Mode+	DynEntry	Entry +	Switch +	Sw	Port	Con	Mngd	Description
_	FC	ICP	SHR	___	___	___	___	___	N	No	_____
_	FD	ICP	SHR	___	___	___	___	___	N	No	_____
_	FE	ICP	SHR	___	___	___	___	___	N	No	_____
_	FF	ICP	SHR	___	___	___	___	___	N	No	_____

***** Bottom of data *****

CHPID List-Filtered for ICP

F1=Help F7=Backward
F8=Forward F9=Swap F10=Actions F11=Add F12=Cancel F13=Instruct
F20=Right F22=Command



Goto Filter Backup Query Help

Actions on selected channel paths

Command ==>

Select one or

Processor ID
Configuration
Channel Subsy

/ CHPID Type+
/ FC ICP
_ FD ICP
_ FE ICP
_ FF ICP

Select by number or action code and press Enter.

- 3= 1. Add like (a)
- 2. Change (c)
- 3. Connect CF channel paths (f)
- 4. Aggregate channel paths (g)
- 5. Delete (d)
- 6. Work with attached control units . . . (s)
- 7. View channel path definition (v)
- 8. View connected switches (w)
- 9. View related CTC connections (k)
- 10. View graphically (h)

F1=Help F2=Split F3=Exit F9=Swap F12=Cancel

Connect CF Channel Paths

F1=Help F2=Split F3=Exit F4=Prompt F5=Reset F7=Backward
 F8=Forward F9=Swap F10=Actions F11=Add F12=Cancel F13=Instruct
 F20=Right F22=Command



Goto Filter Backup Query Help

CF Channel Path Connectivity List

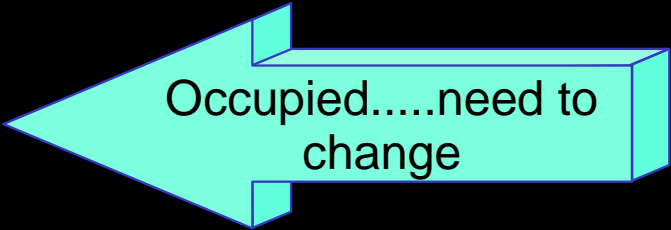
Row 1 of 8

Command ==> _____ Scroll ==> PAGE

Select one or more channel paths, then press Enter.

Source processor ID : Z990
Source channel subsystem ID . . : 0
Source partition name : *

Table with columns: Source (CHPID, Type, Mode, Occ) and Destination (Proc.CSSID, CHPID, Type, Mode). Rows include F0-F3, FC, FD, FE, FF. The 'Occ' column contains 'Y' for all entries.



***** Bottom of data *****

F1=Help F2=Split F3=Exit F4=Prompt F5=Reset F7=Backward
F8=Forward F9=Swap F10=Actions F12=Cancel F13=Instruct F22=Command



Goto Filter Backup Query Help

Actions on selected CF channel paths

Command ==>

Select one or

Source proces
Source channe
Source partit

Select by number or action code and press Enter.

- 1_ 1. Connect to CF channel path (p)
- 2. Disconnect (n)
- 3. View source channel path definition . . (v)
- 4. View destination channel path definition (t)
- 5. View CF control unit and devices (s)

CHPID	Type	SHR	N
/ F0	CFP		
_ F1	CFP		
_ F2	CFP	SHR	N
_ F3	CFP	SHR	N
/ FC	ICP	SHR	N
_ FD	ICP	SHR	N
_ FE	ICP	SHR	N
_ FF	ICP	SHR	N

F1=Help F2=Split F3=Exit F9=Swap F12=Cancel

***** Bottom of data *****

Select CHPID to connect

F1=Help F2=Split F3=Exit F4=Prompt F5=Reset F7=Backward
F8=Forward F9=Swap F10=Actions F12=Cancel F13=Instruct F22=Command



Goto Filter Backup Query Help
Connect to CF Channel Path

croll ==> PAGE

```

C
S Specify the following values.
S Source processor ID . . . . . : Z990
S Source channel subsystem ID . . . : 0
S Source channel path ID . . . . . : FC
S Source channel path type . . . . . : ICP

/ Destination processor ID . . . . . Z990 +
/ Destination channel subsystem ID . . 0 +
/ Destination channel path ID . . . . . FD +

F1=Help      F2=Split      F3=Exit      F4=Prompt
F5=Reset     F9=Swap       F12=Cancel

```

```

_ FE      ICP      SHR      N
_ FF      ICP      SHR      N

```

***** Bottom of data *****

Select other CHPID for the link

F1=Help F2=Split F3=Exit F4=Prompt F5=Reset F7=Backward
 F8=Forward F9=Swap F10=Actions F12=Cancel F13=Instruct F22=Command



Goto Filter Backup Query Help

Add CF Control Unit and Devices

C

Confirm or revise the CF control unit number and device numbers for the CF control unit and devices to be defined.

S

Processor ID : Z990

S

Channel subsystem ID : 0

S

Channel path ID : FC Operation mode . . . : SHR

Channel path type : ICP

/

Control unit number FFFE +

_

Device number FFF9

_

Number of devices : 7

/

F1=Help F2=Split F3=Exit F4=Prompt F5=Reset
F6=Previous F9=Swap F12=Cancel

***** Bottom of data *****

Change Control Unit Selection or accept
(may see multiple screens)

F1=Help F2=Split F3=Exit F4=Prompt F5=Reset F7=Backward
F8=Forward F9=Swap F10=Actions F12=Cancel F13=Instruct F22=Command



Goto Filter Backup Query Help

CF Channel Path Connectivity List

Row 1 of 8

Command ==> _____ Scroll ==> PAGE

Select one or more channel paths, then press Enter.

Source processor ID : Z990
Source channel subsystem ID . . . : 0
Source partition name : *

Table with columns: Source (CHPID, Type, Mode, Occ) and Destination (Proc.CSSID, CHPID, Type, Mode). Rows include F0-F3 (CFP) and FC, FD, FE, FF (ICP).

***** Bottom of data *****

CHPIDs connected...repeat for all the others

F1=Help F2=Split F3=Exit F4=Prompt F5=Reset F7=Backward
F8=Forward F9=Swap F10=Actions F12=Cancel F13=Instruct F22=Command

Goto Filter Backup Query Help

CF Channel Path Connectivity List

Row 1 of 8

Command ==> _____ Scroll ==> PAGE

Select one or more channel paths, then press Enter.

Source processor ID : Z990
 Source channel subsystem ID . . . : 0
 Source partition name : *

-----Source-----					-----Destination-----				
/	CHPID	Type	Mode	Occ	Proc.CSSID	CHPID	Type	Mode	
—	F0	CFP	SHR	N	CF	00	CFP	DED	
=	F1	CFP	SHR	N	CF	01	CFP	DED	
—	F2	CFP	SHR	N					
—	F3	CFP	SHR	N					
—	FC	ICP	SHR	N	Z990.0	FD	ICP	SHR	
—	FD	ICP	SHR	N	Z990.0	FC	ICP	SHR	
—	FE	ICP	SHR	N	Z990.0	FF	ICP	SHR	
—	FF	ICP	SHR	N	Z990.0	FE	ICP	SHR	

***** Bottom of data *****

May need some further cleanup of links. These CHPIDs were used for z900B to connect to CF in z900A. These can now be changed to internal coupling links if desired.

F1=Help F2=Split F3=Exit F4=Prompt F5=Reset F7=Backward
 F8=Forward F9=Swap F10=Actions F12=Cancel F13=Instruct F22=Command



z/OS V1.4 HCD

C Activate or Process Configuration Data

Message List

Save Query Help

Row 1 of 3

Command ==> Scroll ==> PAGE

Messages are sorted by severity. Select one or more, then press Enter.

```

/ Sev Msg. ID Message Text
= E   CBDG530I The following control units of CSS 0 of processor Z990
#     do not have the same processor-related attributes
#     defined in all CSSs: 7000, 7500, 8000, 8500
***** Bottom of data *****

```

F1=Help F2=Split F3=Exit F4=Prompt F5=Reset
 F7=Backwa =Cancel
 F13=Instru

Another possible error....

F1=Help F2=Split F3=Exit F4=Prompt F9=Swap F12=Cancel
 F22=Command

Actions on selected messages

```
Command ==> _ Scroll ==> PAGE  
CBDG530I The following control units of CSS 0 of processor Z990 do  
not have the same processor-related attributes defined in all  
CSSs: 7000, 7500, 8000, 8500
```

Explanation:

The definitions of a specific control unit in multiple channel subsystems of a processor must be the same with exception of the channel path and link address data. These definitions include channel path attachment type, unit address range, I/O concurrency level, protocol, logical address (CUADD) and whether the control unit is defined to shared or non-shared channel paths.

System Action:

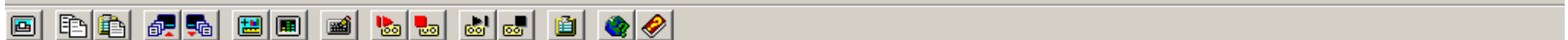
System waits for user action.

User Response:

Define the control unit with the same processor-related attributes (except for the CHPID.link@s) in all channel subsystems of the processor.

- end -

Message Explanation - Problem was that each was defined with a different range of unit addresses (16 and 32) when on separate processors. Not allowed within a single footprint.



z/OS V1.4 HCD

C Activate or Process Configuration Data

Select one of the following tasks.

- S 12 1. Build production I/O definition file
- 2 2. Build IOCDs
- 3 3. Build IOCP input data set
- 4 4. Create JES3 initialization stream data
- 5 5. View active configuration
- 6 6. Activate or verify configuration dynamically
- 7 7. Activate configuration sysplex-wide
- 8 8. Activate switch configuration
- 9 9. Save switch configuration
- F 10. Build I/O configuration statements
- I 11. Build and manage S/390 microprocessor IOCDs and IPL attributes
- 12. Build validated work I/O definition file

sed.

+

F1=Help F2=Split F3=Exit F9=Swap
F12=Cancel

Requested action successfully processed.

F1=Help F2=Split F3=Exit F4=Prompt F9=Swap F12=Cancel
F22=Command

Successful validation.....



z/OS V1.4 HCD

C Activate or Process Configuration Data

Select one of the following tasks.

- S
- 3_ 1. Build production I/O definition file
- 2 2. Build IOCDs
3. Build IOCP input data set
4. Create JES3 initialization stream data
5. View active configuration
6. Activate or verify configuration dynamically
7. Activate configuration sysplex-wide
8. Activate switch configuration
9. Save switch configuration
- F 10. Build I/O configuration statements
- I 11. Build and manage S/390 microprocessor IOCDs and IPL attributes
12. Build validated work I/O definition file

sed.

+

F1=Help F2=Split F3=Exit F9=Swap
F12=Cancel

Option 3 to build IOCP file for use in CHPID Mapping Tool

F1=Help F2=Split F3=Exit F4=Prompt F9=Swap F12=Cancel
F22=Command



z/OS V1.4 HCD

C Activate or Process Configuration Data

Available Processors

Row 1 of 2

S Command ==>

2 Select one.

Processor ID	Type	Model	Mode	Description
CF	2064	100	LPAR	Standalone Coupling Facility
/ <u>Z</u> 990	2084	B16	LPAR	

***** Bottom of data *****

F
I

F1=Help F2=Split F3=Exit F7=Backward F8=Forward
F9=Swap F12=Cancel F22=Command

Select Processor

F1=Help
F22=Command



z/OS V1.4 HCD
C Activate or Process Configuration Data

Build IOCP Input Data Set

Specify or revise the following values.

IODF name : 'HUGHES.IODF07.WORK'
Processor ID : Z990
Title1 : 'Input for CHPID Mapping Tool'
Title2 : HUGHES.IODF07.WORK - 2003-11-08 13:48

IOCP input data set
'HUGHES.IOCP07.TEXT'
Input to Stand-alone IOCP? Yes (Yes or No)

Job statement information
//HUGHESC JOB (ACCOUNT),'HUGHES'
/**
/**
/**
/**
/**

F1=H Define file name for IOCP file 2=Cancel

F1=Help F2=Split F3=Exit F4=Prompt F9=Swap F12=Cancel
F22=Command



EDIT HUGHES.IOCP07.TEXT Columns 00001 00072

Command ==> Scroll ==> PAGE

***** Top of Data *****

==MSG> -CAUTION- Data contains invalid (non-display) characters. Use command

==MSG> ==> FIND P'.' to position cursor to these

000001 ID MSG1='''Input for CHPID Mapping Tool''', *

000002 MSG2='HUGHES.IODF07.WORK - 2003-11-08 13:48', *

000003 SYSTEM=(2084,1), *

000004 TOK=('Z990',0000000A3A6A2084134844670103312F00000000,000*

000005 00000,'03-11-08','13:48:44',' ',' ') *

000006 RESOURCE PARTITION=((CSS(0),(CF01,3),(LPAR1,1),(LPAR2,2)),(CSS*

000007 (1),(LPARA,1),(LPARB,2))), *

000008 MAXDEV=((CSS(0),64512),(CSS(1),49152)) *

000009 CHPID PATH=(CSS(0),00),SHARED,PARTITION=((LPAR1,LPAR2),(=)), *

000010 SWITCH=01,TYPE=CNC

000011 CHPID PATH=(CSS(0),01),SHARED,PARTITION=((LPAR1,LPAR2),(=)), *

000012 SWITCH=01,TYPE=CNC

000013 CHPID PATH=(CSS(0),02),SHARED,PARTITION=((LPAR1,LPAR2),(=)), *

000014 SWITCH=01,TYPE=CNC

000015 CHPID PATH=(CSS(0),03),SHARED,PARTITION=((LPAR1,LPAR2),(=)), *

000016 SWITCH=01,TYPE=CNC

000017 CHPID PATH=(CSS(0),04),SHARED,PARTITION=((LPAR1,LPAR2),(=)), *

000018 SWITCH=01,TYPE=CNC

000019 CHPID PATH=(CSS(0),05),SHARED,PARTITION=((LPAR1,LPAR2),(=)), *

000020 SWITCH=01,TYPE=CNC

000021 CHPID PATH=(CSS(0),06),SHARED,PARTITION=((LPAR1,LPAR2),(=)), *

000022 SWITCH=01,TYPE=CNC

000023 CHPID PATH=(CSS(0),07),SHARED,PARTITION=((LPAR1,LPAR2),(=)), *

000024 SWITCH=02,TYPE=CNC

000025 CHPID PATH=(CSS(0),12),SHARED,PARTITION=((LPAR1,LPAR2),(=)), *

F1=Help F2=Split F3=Exit F4=Return F5=Rfind F6=Rchange

F7=Up F8=

IOCP File-no PCHIDs defined

Download to workstation which contains the CHPID mapping tool

WARNING!



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At this point, HCD and the IOCP file are synchronized by a token. If there are **any** changes made in HCD while using the mapping tool, it will not be possible to migrate the updated output from the mapping tool back into HCD to complete the process.



CHPID Mapping Tool - Overview Presentation



Migrate Updated IOCP back into HCD



z/OS V1.4 HCD

Command ==>

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Hardware Configuration

Select one of the following.

- 5=
1. Define, modify, or view configuration data
 2. Activate or process configuration data
 3. Print or compare configuration data
 4. Create or view graphical configuration report
 5. Migrate configuration data
 6. Maintain I/O definition files
 7. Query supported hardware and installed UIMs
 8. Getting started with this dialog
 9. What's new in this release

For options 1 to 5, specify the name of the IODF to be used.

I/O definition file . . . 'HUGHES.IODF07.WORK' +

After uploading updated IOCP file, migrate back into IODF

F1=Help
F22=Command

F2=Split

F3=Exit

F4=Prompt

F9=Swap

F12=Cancel

Session A - [32 x 80]

File Edit View Communication Actions Window Help

z/OS V1.4 HCD

C Migrate Configuration Data

Select one of the following tasks.

S 1_ 1. Migrate IOCP/OS data

5 2. Migrate switch configuration data

F1=Help F2=Split F3=Exit F9=Swap
F12=Cancel

6. Maintain I/O definition files
7. Query supported hardware and installed UIMs
8. Getting started with this dialog
9. What's new in this release

For options 1 to 5, specify the name of the IODF to be used.

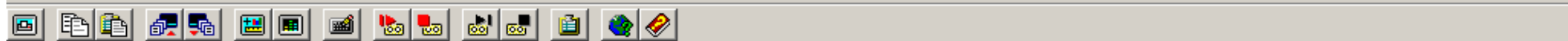
I/O definition file . . . 'HUGHES.IODF07.WORK' +

Option 1 on the pop up menu

F1=Help F2=Split F3=Exit F4=Prompt F9=Swap F12=Cancel
F22=Command

MA a 07/007

Connected to remote server/host wsc1.washington.ibm.com using port 23



z/OS V1.4 HCD
C Migrate Configuration Data

Migrate IOCP / MVSCP / HCPRIO Data

Specify or revise the following values.

Processor ID Z990 + CSS ID _ +
OS configuration ID MVS1 +

Combined IOCP/MVSCP input data set . _____
IOCP only input data set 'HUGHES.IOCP07P.TEXT'
MVSCP only or HCPRIO input data set _____
Associated with processor _____ +
partition _____ +

Processing mode 2 1. Validate
2. Save

Migrate options 3 1. Complete
2. Incremental
3. PCHIDs

MACLIB used 'SYS1.MACLIB'
Volume serial number . . . _____ + (if not cataloged)

F1=Help F2=Split F3=Exit F4=Prompt F9=Swap F12=Cancel

Select the file and use Option 3 under Migrate Options

F1=Help
F22=Comman



C z/OS V1.4 HCD Migrate Configuration Data

Migration Message List

Query Help

Row 1 of 3

Command ==> Scroll ==> PAGE

Messages are sorted by severity. Select one or more, then press Enter.

/	Statement	Orig	Sev	Message Text
_	1	1	E	PCHID migration is not possible because IODF configuration does not match I/O configuration to be migrated.
#				
#				
***** Bottom of data *****				

Possible Error. IODF has been modified.

F1=Help F2=Split F3=Exit F4=Prompt F5=Reset
 F7=Backward F8=Forward F9=Swap F10=Actions F12=Cancel
 F13=Instruct F22=Command

F1=Help F2=Split F3=Exit F4=Prompt F9=Swap F12=Cancel
 F22=Command

Session A - [32 x 80]

File Edit View Communication Actions Window Help

z/OS V1.4 HCD

C Migrate Configuration Data

Migration Message List

Query Help

Command ==> _____ Row 1 of 2
 Scroll ==> PAGE

Messages are sorted by severity. Select one or more, then press Enter.

/	Statement	Orig	Sev	Message	Text
—		I		I/O configuration	successfully written to the IODF
#				HUGHES.IODF07.WORK.	
***** Bottom of data *****					

F1=Help F2=Split F3=Exit F4=Prompt F5=Reset
 F7=Backward F8=Forward F9=Swap F10=Actions F12=Cancel
 F13=Instruct F22=Command

Success!

F1=Help F2=Split F9=Swap F12=Cancel
 F22=Command

MA a 13/004

Connected to remote server/host wsc1.washington.ibm.com using port 23


```

Session A - [32 x 80]
File Edit View Communication Actions Window Help
-----
Goto Filter Backup Query Help
-----
Channel Path List          Row 1 of 25 More: < >
Command ==> _____ Scroll ==> PAGE

Select one or more channel paths, then press Enter. To add, use F11.

Channel Subsystem ID : 0          Logical Channel Subsystem 0
1=LPAR1      2=LPAR2      3=CF01      4=          5=
6=          7=          8=          9=          A=
B=          C=          D=          E=          F=

/ CHPID Type+ Mode+ Mngd I/O Cluster ----- Partitions 0x ----- PCHID
  00  CNC   SHR   No   _____ 1 2 3 4 5 6 7 8 9 A B C D E F
  01  CNC   SHR   No   _____ a a
  02  CNC   SHR   No   _____ a a
  03  CNC   SHR   No   _____ a a
  04  CNC   SHR   No   _____ a a
  05  CNC   SHR   No   _____ a a
  10  CNC   SHR   No   _____ a a
  11  CNC   SHR   No   _____ a a
  12  CNC   SHR   No   _____ a a
  13  CNC   SHR   No   _____ a a
  14  CNC   SHR   No   _____ a a
  15  CNC   SHR   No   _____ a a
  16  CNC   SHR   No   _____ a a
  21  CTC   SHR   No   _____ a a
  22  CNC   SHR   No   _____ a a
  23  CNC   SHR   No   _____ a a
-----
F1=Help      F2=Split      F3=Exit      F4=Prompt      F5=Reset      F7=Backward
F8=Forward   F9=Swap      F10=Actions  F11=Add       F12=Cancel   F13=Instruct
F19=Left     F20=Right    F22=Command
-----

```

CHPIDs now assigned PCHIDs (scroll right on this panel to see)



Adding/Defining Control Units



Goto Filter Backup Query Help

Control Unit List

Command ==> _____ Scroll ==> PAGE

Select one or more control units, then press Enter. To add, use F11.

/ CU Type + #CSS #MC Serial-# + Description

```

_ A60 Add Control Unit
_ A70
_ A80
_ A90 Specify or revise the following values.
_ AA0
_ AB0 Control unit number . . . . . 2000 +
_ AC0 Control unit type . . . . . 2105 _____ +
_ AD0
_ AE0 Serial number . . . . . _____
_ AF0 Description . . . . . _____
_ B00
_ B40 Connected to switches . . . . . _ _ _ _ _ _ _ _ _ _ +
_ B80 Ports . . . . . _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ +
_ BC0
# FFF If connected to a switch:
# FFF
***** Define more than eight ports . . 2 1. Yes
2. No
Propose CHPID/link addresses and
unit addresses . . . . . 2 1. Yes
2. No

```

Use PF11 to add on Control Unit List

F1=H F1=Help F2=Split F3=Exit F4=Prompt F5=Reset F9=Swap
F8=F F12=Cancel
F22=C

Session A - [32 x 80]

File Edit View Communication Actions Window Help

Command ==> _____ Select Processor / CU Row 1 of 2 More: >
 Scroll ==> PAGE

Select processors to change CU/processor parameters, then press Enter.

Control unit number . . : 2000 Control unit type . . . : 2105

	-----Channel Path ID . Link Address +-----							
/ Proc.CSSID	1-----	2-----	3-----	4-----	5-----	6-----	7-----	8-----
Z990.0	_____	_____	_____	_____	_____	_____	_____	_____
Z990.1	_____	_____	_____	_____	_____	_____	_____	_____

***** Bottom of data *****

Select the channel subsystem

F1=Help F2=Split F3=Exit F4=Prompt F5=Reset F6=Previous
 F7=Backward F8=Forward F9=Swap F12=Cancel F20=Right F22=Command

MA a 10/002

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Session A - [32 x 80]

File Edit View Communication Actions Window Help

Command ==>

Select proces

Control unit

/ Proc.CSSID

/ Z990.0

_ Z990.1

Select Processor / CU

Actions on selected processors

Select by number or action code and press Enter.

1_ 1. Select (connect, change) (s)

2. Group connect (g)

3. Disconnect (n)

F1=Help F2=Split F3=Exit F9=Swap F12=Cancel *

Select Option 1

F1=Help F2=Split F3=Exit F4=Prompt F5=Reset F6=Previous

F7=Backward F8=Forward F9=Swap F12=Cancel F20=Right F22=Command

MA a

07/019

Page 77 Connected to remote server/host wsc1.washington.ibm.com using port 23



Select Processor / CU
Add Control Unit

Specify or revise the following values.

```

Control unit number . . : 2000          Type . . . . . : 2105
Processor ID . . . . . : Z990
Channel Subsystem ID . . : 0

Channel path IDs . . . . 13    14    _    _    _    _    _    _    +
Link address . . . . . _    _    _    _    _    _    _    _    +
Unit address . . . . . 00    _    _    _    _    _    _    _    +
Number of units . . . . 32_    _    _    _    _    _    _    _
Logical address . . . . _    + (same as CUADD)
Protocol . . . . . _    + (D,S or S4)
I/O concurrency level . 2    + (1, 2 or 3)

```

F1=Help F2=Split F3=Exit F4=Prompt F5=Reset F9=Swap
F12=Cancel

Define Control Unit

F1=Help F2=Split F3=Exit F4=Prompt F5=Reset F6=Previous
F7=Backward F8=Forward F9=Swap F12=Cancel F20=Right F22=Command

Adding Devices



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- No change from previous HCD for defining devices
 - Devices are associated with a particular channel subsystem based on the control units for which they are defined.

HCD Enhancements and Tips for z990



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- **Get the latest z/OS 1.4 publications for HCD and review changes!**
 - ▶ **Same HCD for all "MVS" operating systems supported on z990**
 - ▶ <http://www.ibm.com/servers/eserver/zseries/zos/bkserv/r4pdf/hcd.html>
 - ▶ **In particular:**
 - **Processor type cannot be changed to 2084.**
 - **Use new HCD migration functions to copy from earlier machines.**

- **Be sure HCD APAR OA03278 is installed (PTF available 8/22/2003)**
 - ▶ **"Overgen" support for CHPIDs with PCHID value "*" for easier migration or pre-definition of channels to be added in the future. The CHPID and its attached I/O units are validated, but not passed to the IOCDS nor to the HSA via dynamic I/O. Without this support, a production IODF cannot be created from a work IODF containing a 2084 with overdefined or predefined CHPIDs.**
 - ▶ **Migration support for FICON CTC destination CUADD for more than one LCSS.**
 - ▶ **Several important fixes**

- **In working with multiple processor definitions in HCD, work on one processor at a time. Complete the export and CHPID mapping tool activities for each machine before beginning the next.**



HCM



Migration to z990 Processor with HCM

- Requires use of HCD panels for some steps
- Two approaches
 - ▶ Configurations with Logical Definitions only
 - ▶ Configurations with Logical and Physical Definitions
- Reference Newsletter 24
 - ▶ www.ibm.com/servers/eserver/zseries/zos/hcm/hcmhtmls/newsletter24.html
- For general information:
 - ▶ www.ibm.com/servers/eserver/zseries/zos/hcm/

HCM Migration Steps - Logical Definitions Only



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- **Back up HCM files and IODF**
- **HCM:**
 - ▶ **Create a new 2084 Processor using HCM and define the number of Logical Channel Subsystems**
 - ▶ **Exit HCM**
- **HCD:**
 - ▶ **Perform the Copy processor to channel subsystem task on the non-2084 processor**
 - ▶ **Delete the processor definition that was copied to the 2084 LCSS**
 - ▶ **Update any link CHPIDs to "not occupied"**
 - ▶ **Exit HCD**
- **HCM:**
 - ▶ **Restart HCM which will force a resynchronization**
 - ▶ **Reestablish Coupling Facility Connections**
 - ▶ **Verify CTC connections**
 - **Point to point especially**
- **Migration Complete**

HCM Migration Steps - Logical and Physical Definitions



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- **Back up HCM files and IODF**
- **HCM:**
 - ▶ Determine existence of Generic Converters and update as needed
 - ▶ Save the HCM configuration file
 - ▶ Export the files "CONNECT.txt" and "LOGLINK.txt"
 - ▶ Create a new 2084 Processor using HCM and define the number of Logical Channel Subsystems
 - ▶ Exit HCM
- **HCD:**
 - ▶ Perform the Copy processor to channel subsystem task on the non-2084 processor
 - ▶ Delete the processor definition that was copied to the 2084 LCSS
 - ▶ **Update any link CHPIDs to "not occupied"**
 - ▶ Exit HCD
- **DO NOT RESTART HCM AT THIS TIME**

Continued next page....

HCM Migration Steps - Logical and Physical Definitionscontinued



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- Edit the files "CONNECT.txt" and "LOGLINK.txt"
- **HCM:**
 - ▶ Do not load the HCM configuration file but execute the "Import data" menu item
 - ▶ Evaluate any error messages generated
 - ▶ Re-establish coupling facility connections.
 - ▶ Verify CTC connections
 - Point to point especially
- **Migration Complete**

Please refer to Newsletter 24 for details

HCM-z990 Processor Support



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- HCM supports defining z990 processors: in the Create Processor dialog, select processor type, and specify the number of channel subsystems required
- Created channel subsystems will then have ascending CSS ids
- In the Channel Subsystem section of the Processor dialog for z990 processors, you can work with channel subsystems (Edit/Create/Delete) and their partitions and CHPIDs
- Channel subsystems are referenced as <proc>.<channel subsys Id> in HCM (for an example, see PCHID support)

Create Processor

ID: Short name:

Description:

Serial No.:

Type-Model:

Configuration mode:
 Basic LPAR

Number of Channel Subsystems:

Specify SNA address only if part of an S/390 microprocessor cluster:
 SNA address
 Network name:

CPC name:

Buttons: OK, Cancel, Help

Processor Panel



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Processor [X]

ID: Z990 Short name: 90 Edit...

System Name:

Description: z990 Processor Status...

Serial No.:

Type: 2084 **O**K

Model: B16 **C**ancel

Mode: LPAR

Support Level: XMP, Basic 2084 support, 3xx models Help

SNA address (S/390 microprocessor cluster)

Network name:

CPC name:

Channel Subsystems

ID	Max number of devices	Description
0	64512	
1	64512	

Partitions...
CHPIDs...
Edit...
Create...
Delete

dit LCSS0 Option-Verify Maximum Number of Devices



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Processor [X]

ID: Z990 Short name: 90

System Name:

Description: z990 Processor

Serial No.:

Type: 2084

Model: B16

Mode: LPAR

Support Level: XMP, Basic 2084 support, 3xx models

SNA address (S/390 microprocessor cluster)

Network name:

CPC name:

Channel Subsystems

ID	Max number of devices	Description
0	64512	
1	64512	

Edit Channel Subsystem [X]

Channel subsystem on Z990

ID: 0 Description:

Maximum number of devices:

CHPIDS and PCHIDS Displayed



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CHPIDs ✖

CHPIDs on Z990.0

ID	Interface type	Type ▲	Mode	PCHID
Z990.0.80	S	CBY	DED	204
Z990.0.C5	S	CFP	SHR	101
Z990.0.E5	S	CFP	SHR	111
Z990.0.44	S	CFS	SHR	118
Z990.0.45	S	CFS	SHR	108
Z990.0.64	S	CFS	SHR	109
Z990.0.65	S	CFS	SHR	110
Z990.0.C4	S	CFS	SHR	100
Z990.0.E4	S	CFS	SHR	119
Z990.0.13	S	CNC	DED	1F0
Z990.0.14	S	CNC	DED	220
Z990.0.15	S	CNC	DED	1C0
Z990.0.16	S	CNC	SHR	221
Z990.0.17	S	CNC	SHR	1C1
Z990.0.18	S	CNC	SHR	161
Z990.0.19	S	CNC	DED	1F1
Z990.0.1A	S	CNC	SHR	262
Z990.0.1C	S	CNC	SHR	180
Z990.0.1D	S	CNC	SHR	222
Z990.0.1E	S	CNC	SHR	241
Z990.0.1F	S	CNC	SHR	171
Z990.0.29	S	CNC	SHR	1E2
Z990.0.2A	S	CNC	SHR	191
Z990.0.2C	S	CNC	SHR	192
Z990.0.2D	S	CNC	SHR	140
Z990.0.2E	S	CNC	SHR	223

Edit...

Partitions...

Interface Type...

Create...

Delete

OK

Cancel

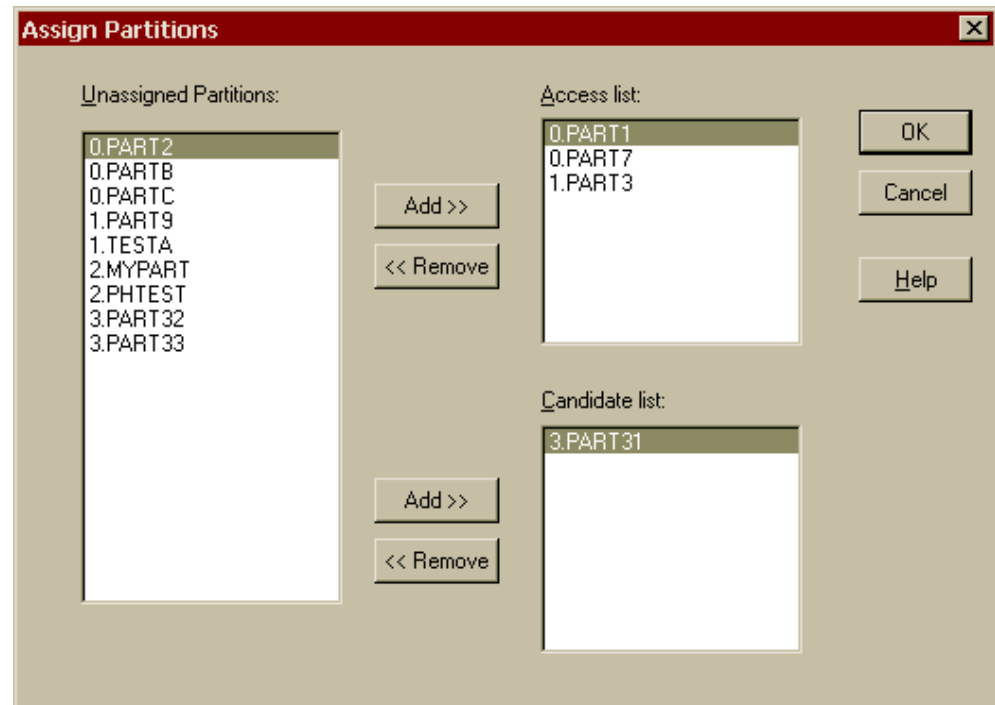
Help

Columns... Partition legend by image number: 1=A4 2=A1 3=A5 4=CFTEST1



HCM-Spanned CHPID Support (GA2)

- HCM supports defining spanned CHPIDs on XMP processors
- Define a spanned CHPID by selecting spanned as CHPID mode on HCM's Create CHPID dialog, and by then assigning partitions from more than one channel subsystem to the CHPID (only possible if the CHPID is eligible for being spanned)
- HCM allows changing a shared CHPID to a spanned CHPID by assigning partitions of other channel subsystems to the CHPID (only if the CHPID is eligible for being spanned)
- HCM allows changing a spanned CHPID to shared CHPID by removing partitions of other channel subsystems from the CHPID
- Deleting a spanned CHPID from one channel subsystem removes the CHPID from all channel subsystems. To remove ('delete') the access from a particular channel subsystem, remove the partitions in the Assign Partitions dialog.

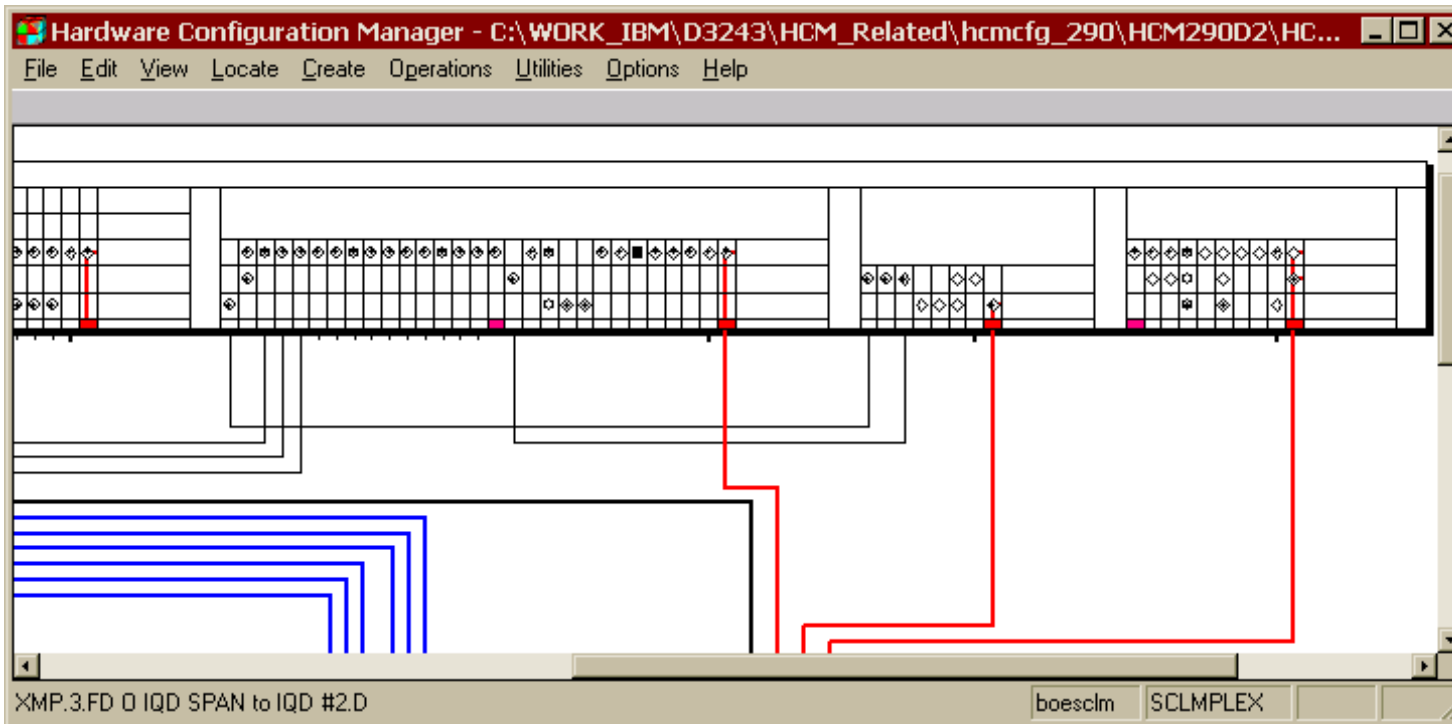
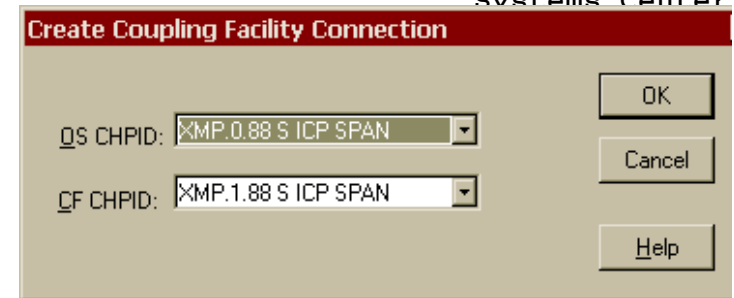


HCM-Spanned CHPID Support (GA2)



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- Connect spanned ICP channels via HCM's Create Coupling Facility Connection dialog (similar to previous CF connections)
- Connect objects to spanned CHPIDs which are not CF CHPIDs via the Select Connection Target(s) dialog
- Locating or selecting a spanned CHPID will select the CHPID on all channel subsystems it is defined to and will highlight all paths it is involved in





HCD Dynamic Activation



Activate Messages

- Messages are issued during ACTIVATE processing to describe errors that have occurred or changes to the I/O configuration
 - ▶ IOS500I - describes errors that prevent the ACTIVATE from completing as well as warning and informational messages
 - ▶ IOS502I - describes CHPIDs, CUs, devices, and device paths that were added or deleted
 - ▶ IOS503I - describes the partitions that are gaining or losing access to channel paths or devices
 - ▶ IOS504I - describes the coupling facility (message) CHPIDs, CUs, and devices that were added or deleted



Activate Messages

- For exploitation
 - ▶ IOS500I messages related to adding, deleting, or modifying H/W resources will have the CSS id appended, if on a z9XX processor
 - IOS500I messages related to S/W errors do not need the CSS id appended (e.g. can't delete CHPID because configured online)
 - ▶ IOS502I, IOS503I, and IOS504I messages will also have the CSS id appended

```
IOS502I - DEVICE(S) ADDED {TO CSS xx}  
          CHPID(S) DELETED {FROM CSS xx}
```

- For compatibility
 - ▶ No message changes since hardware ACTIVATEs are restricted to CSS 0



D IOS,CONFIG(HSA) Command

- D IOS,CONFIG(HSA) or D IOS,CONFIG(ALL) command used to check for available HSA space
- Messages changed to remove shared/non-shared text on a z990 processor with exploitation feature

z/OS with Compatibility Code or any z/OS on non-z990 Processor

IOS506I hh.mm.ss I/O CONFIG DATA

HARDWARE SYSTEM AREA AVAILABLE FOR CONFIGURATION CHANGES

xxxxxxxxxx PHYSICAL CONTROL UNITS

xxxxxxxxxx SUBCHANNELS FOR SHARED CHANNEL PATHS

xxxxxxxxxx SUBCHANNELS FOR UNSHARED CHANNEL PATHS

xxxxxxxxxx LOGICAL CONTROL UNITS FOR SHARED CHANNEL PATHS

xxxxxxxxxx LOGICAL CONTROL UNITS FOR UNSHARED CHANNEL PATHS

Note: On z990 processor, unshared channel path values will always be zero.

D IOS,CONFIG(HSA)



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z/OS with Exploitation Feature on z990 Processor

IOS506I hh.mm.ss I/O CONFIG DATA

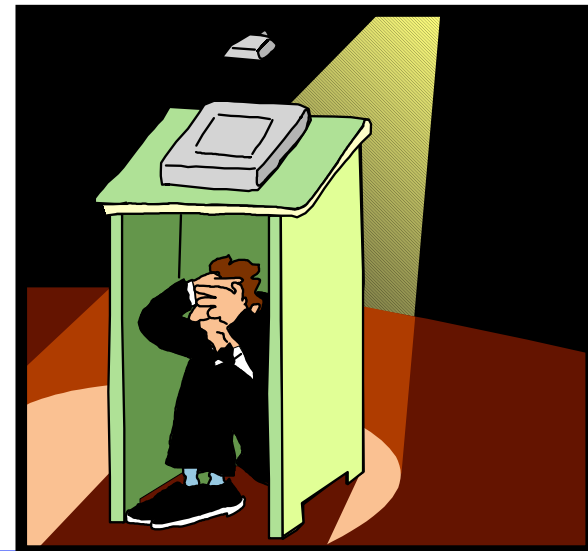
HARDWARE SYSTEM AREA AVAILABLE FOR CONFIGURATION CHANGES

PHYSICAL CONTROL UNITS	50
CSS 0 - LOGICAL CONTROL UNITS	100
SUBCHANNELS	2000
CSS 1 - LOGICAL CONTROL UNITS	120
SUBCHANNELS	3240



HSA Planning

- Dependent on
 - ▶ Number of partitions
 - ▶ I/O Configuration
 - ▶ Number of Logical Channel Subsystems
- For Planning, assume a worst case value on the order of
 - ▶ **1 - 2 GB**





IOCP



IOCP Changes-Execution Parameters

- IOCP Name: **ICPIOCP**
- Support for Multiple Channel Subsystem (MCSS)
- LPAR Mode ONLY
 - ▶ **LPAR=NO|YES** no longer required
 - Warning message or error may be generated if specified



IOCP Changes-Input Statements

- RESOURCE Statement
 - ▶ RESOURCE PART=((CSS(n),(lpname[,mifid],...)
[, (CSS(n),(...))])
 - Or PART=((lpname [,mifid],...)
 - Implies CSS(0)
 - ▶ MAXDEV Keyword
 - New keyword for allocating HSA for dynamic update
 - MAXDEV=((CSS(n),ss0)[,(CSS(n),ss0),...])



IOCP Changes-Input Statements

- CHPID Statement
 - ▶ PCHID Keyword
 - New Keyword
 - PCHID=xxx
 - ▶ PATH Keyword
 - PATH=(CSS(m,n)cn)
 - PATH=(cn) if only one Channel Subsystem
 - ▶ PART Keyword
 - PART=((CSS(n),(access list))[, (candidate list)])...



IOCP Changes-Input Statements

- CNTLUNIT
 - ▶ PATH=((CSS(n),cn,cn,...)[,(CSS(n),cn,...)...])
 - ▶ LINK=((CSS(n),lv,lv,...) [((CSS(n),lv,...)...])
- IODEVICE
 - ▶ PART=((CSS(n),device candidate list),...)
 - ▶ PATH=((CSS(n),cn) [(CSS(n),cn),...])
 - preferred path

Questions?



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