

z/OS



# Hardware Configuration Definition Scenarios



z/OS



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**Note!**

Before using this information and the product it supports, be sure to read the general information under "Notices" on page 115.

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This edition applies to Version 1 Release 1 of z/OS (5694-A01) and to all subsequent releases and modifications until otherwise indicated in new editions.

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## About This Book

This book contains scenarios leading the reader through some of the important tasks to be performed when working with HCD.

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## Who This Book Is For

This book is a companion book to *z/OS HCD User's Guide* and addresses the same audience.

---

## How the Scenarios Are Presented

### Step-by-Step Instructions

The information is presented in the form of step-by-step instructions. Context menu choices and the related action codes are highlighted. For instance, change is shown as *Change* (**c**).

The scenarios include explicit numbers to make it easier to follow the various steps and the results obtained. When using the scenarios in your installation, bear in mind that you have to adapt them to your own environment when performing a task.

If you are not familiar with the procedure each step is referring to, look up the information in *z/OS HCD User's Guide*.

### Graphical Reports of Source and Target Configuration

Whenever possible, the scenarios include graphical reports of the configuration you start with (source configuration) and the configuration resulting from the changes (target configuration). Most of the reports have been created using the HCD graphical report function.

---

## What the Scenarios Cover

The following table gives a short overview of the tasks and objects covered by the scenarios.

Task	Object	Where Described
Add (Define)	String of DASDs	Chapter 1
	TP Control Unit	Chapter 2
	Partition	Chapter 6
	Serial Channels	Chapter 11
	ESCON Director	Chapter 10
	Coupling Facility	Chapter 15
	CTC Connection	Chapter 12
	Configuration package	Chapter 22

<b>Task</b>	<b>Object</b>	<b>Where Described</b>
<b>Change</b>	Control Unit	Chapter 3
	Device Type	Chapter 3
	Channels	Chapter 13
	Processor model	Chapter 4
	BASIC Processor	Chapter 7
	LPAR Processor	Chapter 8
	ESCON Path to FICON Path	Chapter 9 Chapter 16
<b>Replace</b>	Processor	Chapter 5
	Control Unit	Chapter 14
<b>Reconfigure</b>	Installation-Static Devices	Chapter 19
<b>Merge</b>	IODFs	Chapter 17
		Chapter 18
<b>Allocate</b>	HCD Migration Data Sets	Chapter 20
<b>Migrate</b>	IOCP/MVSCP Data Sets To FICON Bridge Card	Chapter 21
		Chapter 16
<b>Transmit</b>	Configuration package	Chapter 22
<b>Upgrade</b>	System	Chapter 23
<b>Activate</b>	Configuration	Chapter 24
<b>IPL</b>	Shared IODF	Chapter 25



---

## Chapter 1. Add a New String of DASDs

Add a new string of DASDs to an already defined ESCON channel. The string of DASDs consists of sixteen 9345s, which are to be attached to a newly defined 9343 control unit.

---

### Task

You want to add a new string of DASDs to an already defined ESCON channel. The string of DASDs consists of sixteen 9345s, which are to be attached to a newly defined 9343 control unit.

#### The source configuration contains

Processor (PROC1) with two partitions (PART1 and PART2)  
ESCON Director (01)  
Channel paths (10 and 20), which are connected to the ESCON Director  
Control unit (0002)  
Operating system (MVSPROD) with EDT and esoterics running in PART1

### Procedure

#### Define Your Configuration

==> Go to the Control Unit List panel.

1. F11=Add a new control unit.
  - On the resulting Add Control Unit panel, specify:
    - Control unit number (100)
    - Control unit type (9343-1)
    - Connected to switches (01)
    - Ports (E1)
  - On the resulting Select Processor / Control Unit panel *Select (connect/change)* **S** the processor (PROC1) and the newly defined control unit.
  - On the resulting Add Control Unit panel, specify:
    - Channel path ID (10)
    - Link address (E1). Required because CUs are attached via switch.
    - Unit address (00)
    - Number of units (16)

==> Go to the I/O Device List panel.

2. F11=Add the new string of DASDs.
  - On the resulting Add Device panel, specify:
    - Device number (100)
    - Number of devices (16)
    - Device type (9345)
    - Connected to CUs (100)
  - On the resulting Device / Processor Definition panel, select (**F**) the processor (PROC1) you intend to connect the DASDs to.

- On the resulting Define Device / Processor panel, check and, if necessary, correct the values shown. Press the Enter key twice.

#### **Optional definition**

As the DASDs are attached to a SHR channel, you can define the device to specific partitions. You do this by selecting YES for the Explicit device candidate list field.

On the resulting Define Device Candidate List panel, HCD prompts you to select the partitions, which may access the device.

- On the resulting Define Device to Operating System Configuration panel, perform *Select (connect/change)* **S** on the operating system (MVSPROD) you intend to connect the DASDs to.
- On the resulting Define Device Parameter / Features panel, accept the default values shown or change them as required.  
On the resulting Assign/Unassign Device to Esoteric panel, specify Yes to assign a device to an esoteric.

#### **Verify Your Configuration**

Select option 4 on the HCD main panel and create or view a graphical CHPID report to verify the changes made. The resulting report is shown in Figure 1 on page 3 .

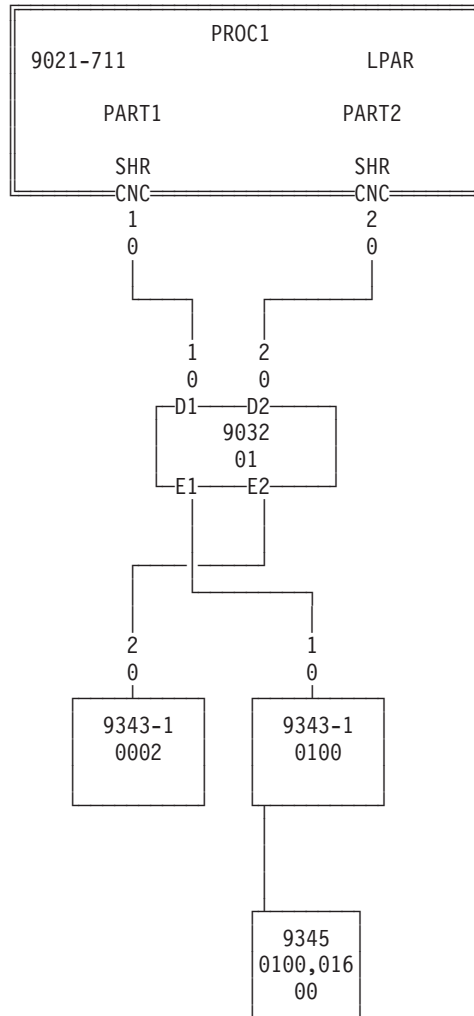


Figure 1. CHPID Report of Target Configuration

You can also view a graphical report from the Control Unit List panel by performing *View graphically* ( ) on the added control unit.

### Activate Your Configuration

You may use dynamic activation to make the devices available to your system.

For a list of steps required to activate a configuration refer to “Chapter 24. Activate a Configuration Dynamically” on page 109.



---

## Chapter 2. Add TP Control Unit (3745) to ESCON CNC Channel

Add a new 3745 to an existing configuration and connect the 3745 via an ESCON Director to an ESCON CNC channel, which is not currently defined to the processor.

---

### Task

You want to add a new 3745 to an existing configuration and connect the 3745 via an ESCON Director to an ESCON CNC channel, which is not currently defined to the processor.

**The source configuration contains**

Processor (PROC1) with one partition (PART1)  
ESCON Director (01)  
Operating system (MVS1) running in PART1

### Procedure

#### Define Your Configuration

==> Go to the Channel Path List panel of the processor (PROC1) you intend to connect the channel path to.

1. F11=Add a new channel path.
  - On the resulting Add Channel Path panel, specify:
    - Channel path ID (10)
    - Channel path type (CNC)
    - Operation mode (DED)
    - Dynamic switch ID (01)
    - Entry switch ID (01)
    - Entry port (D1)
  - On the resulting Define Access List panel, select partition (PART1) for inclusion in the access list.

==> Go to the Control Unit List panel.

2. F11=Add the new 3745 control unit.
  - On the resulting Add Control Unit panel specify:
    - CU number (400)
    - CU type (3745)
    - Connected to switches (01)
    - Ports (E1)
  - On the resulting Select Processor / Control Unit panel, *Select (connect/change)* **S** the processor (PROC1).
  - On the resulting Add Control Unit panel, specify:
    - Channel path ID (10)
    - Link address (E1)
    - Number of units (1)

Unit address (01). The unit address must correspond to the data configured in the MOSS - E console, and is generally 01.

==> Go to the I/O Device List panel.

3. F11=Add the new 3745 device.

- On the resulting Add Device panel, specify:
  - Device number (400)
  - Number of devices (1)
  - Device type (3745)
  - Connected to CUs (400)
- On the resulting Device / Processor Definition panel, select (**F**) the processor (PROC1) you intend to connect the 3745 device to.
- On the resulting Define Device / Processor panel, check and, if necessary, correct the values. Press the Enter key twice.  
The unit address has to be the same as the one defined on the CU (01); HCD also provides prompt information on the unit address field.
- On the resulting Define Device to Operating System Configuration panel, perform *Select (connect/change)* (**S**) on the operating system (MVS1) you intend to connect the 3745 to.
- On the resulting Define Device Parameter / Features panel, accept the default values shown or change them as required.

### Verify Your Configuration

View the attached devices from the I/O Device List panel by performing *View graphically* (**H**) on the added device (0400) and verify the changes made. The resulting report is shown in Figure 2 on page 7.

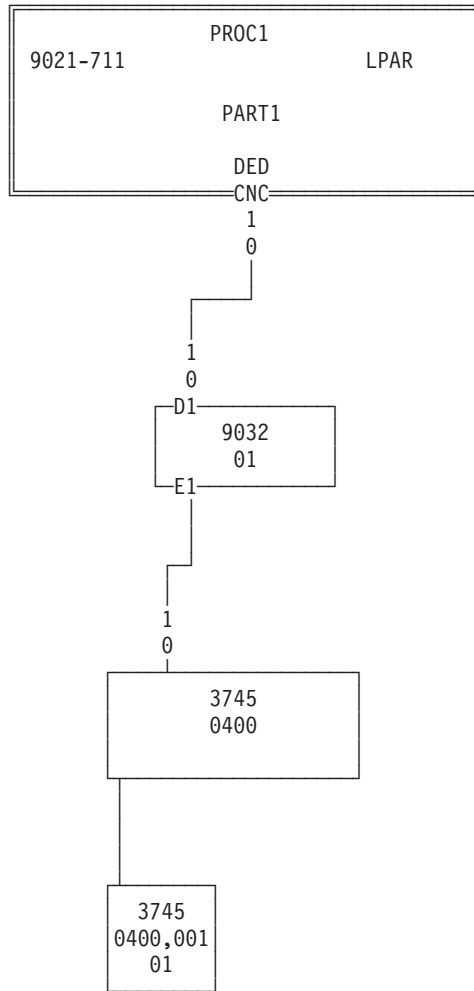


Figure 2. Target Configuration

### Activate Your Configuration

You may use dynamic activation to make the devices available to your system.

For a list of steps required to activate a configuration refer to “Chapter 24. Activate a Configuration Dynamically” on page 109.





---

## Chapter 3. Change Control Unit and Device Type

Replace your 3430 control units with 3490 control units and your 3430 devices with 3490 devices. The channel type is to remain unchanged.

---

### Task

You want to replace your 3430 control units with 3490 control units and your 3430 devices with 3490 devices. The channel type is to remain unchanged.

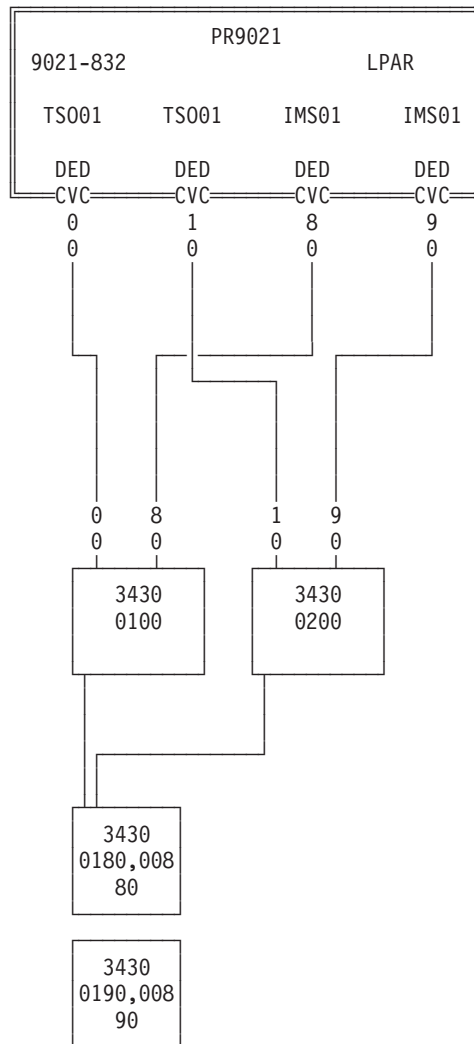


Figure 3. Source Configuration

**The source configuration contains**

One LPAR processor (PR9021) with two partitions (TSO01 and IMS01)

Four channels of type CVC

Two 3430 control units (0100 and 0200), which are connected to both partitions through dedicated channels

You can accomplish the task by:

- Disconnecting the affected CUs from the devices, otherwise error message CBDA297I Control unit 0100 of type 3490 cannot attach device 0180 of type 3430. is issued if you try to attach the device.
- Changing the control unit characteristics (type and protocol), and also verifying the unit address range.
- Performing the device type group change.
- Connecting the devices again to the control units.

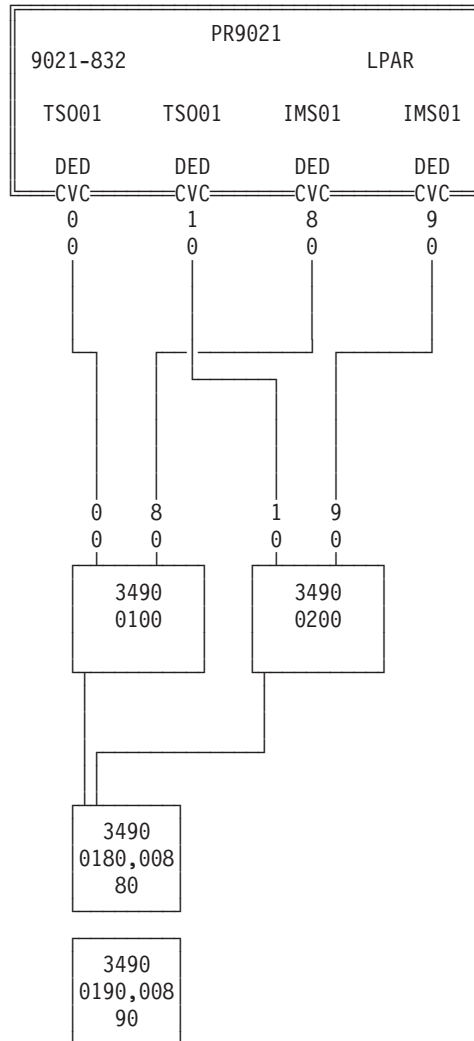


Figure 4. Target configuration

## Procedure

### Define Your Configuration

==> Go to the I/O Device List panel.

1. Perform **CSS group change** (**g**) on all devices that are attached to control units 0100 and 0200. A group action is initiated by specifying a left parenthesis (**(**) in the action entry field of the first object and a right parenthesis (**)**) in the action entry field of the last object.
  - On the resulting Change Device Group panel, write down the CU connections before disconnecting the corresponding CUs by blanking them out.

==> Go to the Control Unit List panel.

2. **Change** (**c**) control unit 0100.
  - On the resulting Change Control Unit Definition panel, specify CU type 3490.
  - On the resulting Select Processor / Control Unit panel, perform **Select (connect/change)** (**s**) on processor PR9021.
  - On the resulting Change Control Unit Definition panel:

Change the protocol to S4.

Verify the unit address range shown (0180-0187).

3. Repeat step 2 on page 11 for control unit 0200 with the following values:  
CU type (3490)  
Protocol (S4)  
Unit address range (0190-0197)

==> Go to the I/O Device List panel.

4. Perform *Device type group change* ( **t** ) for the affected devices (0180-0187 and 0190-0197).
  - On the resulting Device Type Group Change panel, specify 3490 as new device type-model.  
This also causes all references to the devices to be changed (including OS references).
5. Perform *CSS group change* ( **g** ) again to connect the devices to the CUs (0100 and 0200).
  - On the resulting Change Device Group panel, specify Connected to CUs (for 0100 and 0200).
  - On the resulting Change Device Group / Processor Definition panel, accept the values shown.

### **Verify Your Configuration**

Create or view a graphical configuration report to verify the changes made. On the I/O Device List panel, select 0180 and 0190. Perform *View graphically* ( **h** ) to display the report shown in Figure 4 on page 11.

### **Activate Your Configuration**

For a list of steps required to activate a configuration refer to “Chapter 24. Activate a Configuration Dynamically” on page 109.

---

## Chapter 4. Change Processor Model

Replace an existing 9672-RX3 processor with a 9672-RX4 processor. You must re-assign the CHPIDs during this process.

---

### Task

You want to replace an existing 9672-RX3 processor with an 9672-RX4 processor. The processor model and the channel paths are subject to change. The channel paths need to be changed to conform to the processor plugging rules of the new processor model.

**The source configuration contains**

A BASIC processor (PROC1), which is a 9672-RX3 and a CHPID range 40 to 57.

**The target configuration contains**

A BASIC processor (PROC1), which is a 9672-RX4 and a CHPID range D8 to EF.

### Procedure

#### Define Your Configuration

==> Go to the Processor List panel.

1. **Change** ( **C** ) processor PROC1.
  - On the resulting Change Processor Definition panel, specify the new model (RX4), and press Enter.

```
Change Processor Definition

Specify or revise the following values.

Processor ID . . . . . : PROC1
Support level:
Parallel, ESCON (CBY), CF, OSA channels

Processor type . . . . . 9672      +
Processor model . . . . . RX4      +
Configuration mode . . . . . BASIC +

Serial number . . . . . 1234569672 +
Description . . . . . Processor 1 _____

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
```

- The Update Channel Path Identifiers panel is displayed. This panel shows the channel path definitions of the processor to be changed, which you can change to new channel path definitions.

```

Update Channel Path Identifiers
Row 1 of 24
Command ==> _____ Scroll ==> PAGE

Specify any changes to the channel path identifiers in the list below.

Processor ID . . . : PROC1

CHPID  Type  Side  Until CHPID  New CHPID +
40     CNC      ---      40           40
41     CNC      ---      41           41
42     CNC      ---      42           42
43     CNC      ---      43           43
44     CNC      ---      44           44
45     CNC      ---      45           45
46     CNC      ---      46           46
47     CNC      ---      47           47
48     CNC      ---      48           48
49     CNC      ---      49           49
4A     CNC      ---      4A           4A
4B     CNC      ---      4B           4B
F1=Help      F2=Split    F3=Exit     F4=Prompt   F5=Reset
F7=Backward  F8=Forward  F9=Swap     F12=Cancel  F22=Command

```

- The column New CHPID shows the channel path IDs to which the values of column CHPID are mapped by default. You can overtype the values of the column New CHPID and enter a value in the Until CHPID column to specify a range of CHPIDs.

```

Update Channel Path Identifiers
Row 1 off 24
Command ==> _____ Scroll ==> PAGE

Specify any changes to the channel path identifiers in the list below.

Processor ID . . . : PROC1

CHPID  Type  Side  Until CHPID  New CHPID +
40     CNC      ---      57           D8
41     CNC      ---      41           41
42     CNC      ---      42           42
43     CNC      ---      43           43
44     CNC      ---      44           44
45     CNC      ---      45           45
46     CNC      ---      46           46
47     CNC      ---      47           47
48     CNC      ---      48           48
49     CNC      ---      49           49
4A     CNC      ---      4A           4A
4B     CNC      ---      4B           4B
F1=Help      F2=Split    F3=Exit     F4=Prompt   F5=Reset
F7=Backward  F8=Forward  F9=Swap     F12=Cancel  F22=Command

```

- Enter the channel path ID 57 in the Until CHPID column to specify the range of CHPIDs you would like to change and then change the NEW CHPID to D8, which will be the new starting channel path ID. Press the Enter key to process.

```

Update Channel Path Identifiers
Row 13 of 24
Command ==> _____ Scroll ==> PAGE
Specify any changes to the channel path identifiers in the list below.
Processor ID . . . : PROC1
CHPID  Type  Side  Until CHPID  New CHPID +
40      CNC      —      —           D8
41      CNC      —      —           D9
42      CNC      —      —           DA
43      CNC      —      —           DB
44      CNC      —      —           DC
45      CNC      —      —           DD
46      CNC      —      —           DE
47      CNC      —      —           DF
48      CNC      —      —           E0
49      CNC      —      —           E1
4A      CNC      —      —           E2
4B      CNC      —      —           E3
F1=Help      F2=Split      F3=Exit      F4=Prompt      F5=Reset
F7=Backward  F8=Forward    F9=Swap      F12=Cancel     F22=Command

```

Now the panel is displayed again to verify the changes. The New CHPID range starts with CHPID D8 and has been changed until CHPID 57. Press the Enter key to process.

- The processor List with the changed new model (RX4) is displayed.

```

Processor List      Row 1 of 1 More: >
Command ==> _____ Scroll ==> PAGE
Select one or more processors, then press Enter. To add, use F11.

/ Proc. ID Type + Model + Mode+ Serial-# + Description
_ PROC1  9672  RX4  BASIC 1234569672 Processor1_____
***** Bottom of data *****

```

### Activate Your Configuration

Because the processor mode has been changed a dynamic activation is no longer possible, you have to:

1. Build production IODF.
2. Build IOCDS.
3. Setup the processor for BASIC mode at the hardware console.
4. Perform POR with the new IOCDS.

For guidance on changing the processor type refer to “Chapter 5. Replace Processor / Change Processor Type” on page 17.





---

## Chapter 5. Replace Processor / Change Processor Type

Replace an existing 9021-832 processor with a 9672-RA5 processor and use CVC channels (ESCON converters) instead of BL channels.

---

### Task

You want to replace an existing 9021-832 processor with a 9672-RA5 processor and use CVC channels (ESCON converters) instead of BL channels.

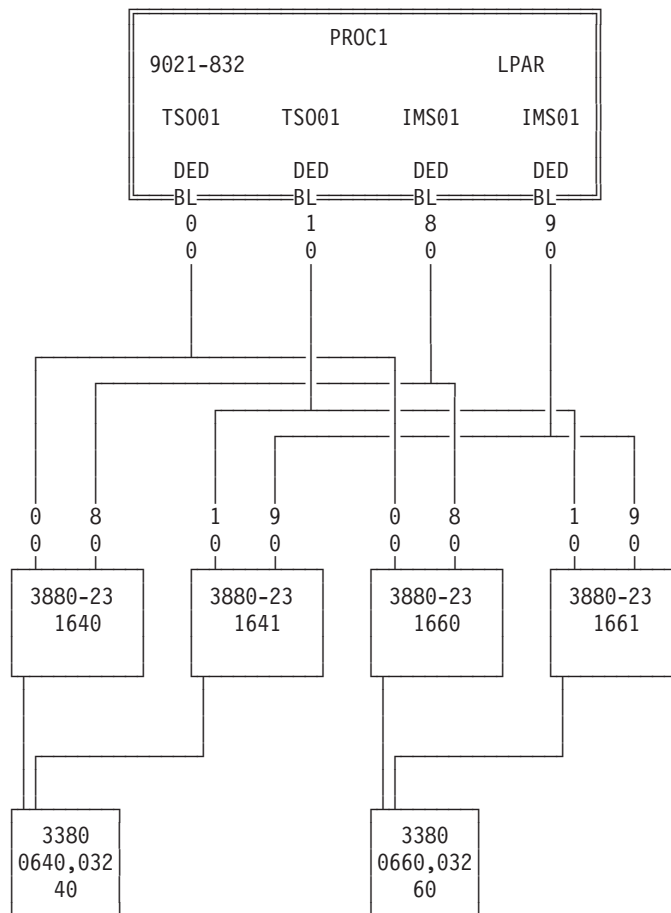


Figure 5. Source Configuration

#### The source configuration contains

- An LPAR processor (PROC1) with two partitions (TSO01 and IMS01)
- Four dedicated, parallel channels of type BL (00, 10, 80, 90)
- Four control units (1640, 1641, 1660, 1661)
- Two strings of 3380s (0640, 0660) with starting unit address 40 and 60

You can accomplish the task by:

- Changing the processor
- Reassigning the channel paths.
- Changing the channel path type.

**POR required**

A POR is required when the processor type is changed.

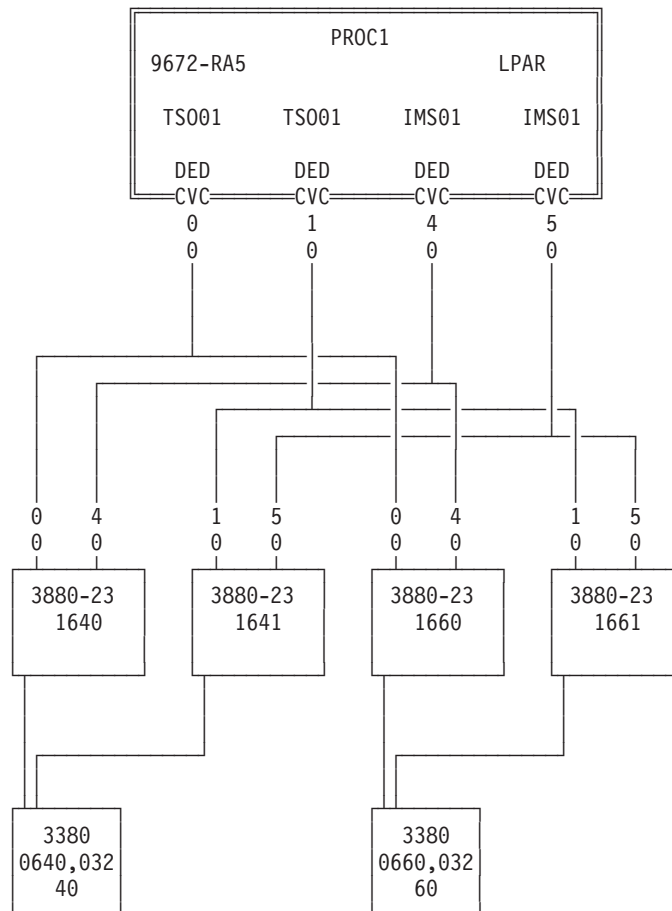


Figure 6. Target Configuration

## Procedure

### Define Your Configuration

==> Go to the Processor List panel.

1. Change ( **C** ) processor PROC1.
  - On the resulting Change Processor Definition panel, specify:
    - Processor type (9672)
    - Model (RA5)
  - On the resulting Available Support Levels panel, select the appropriate support level.

- On the resulting Update Channel Path Identifiers panel, accept the suggested CHPIDs, or change a range of CHPIDs by entering an end value in the Until CHPID column, and by entering a new starting value in the New CHPID column (in this scenario enter 90 in the Until CHPID column as a CHPID range and enter 40 in the New CHPID column) which is especially helpful if many CHPIDs are defined.

```

Update Channel Path Identifiers
Row 1 of 20
Command ==> _____ Scroll ==> PAGE

Specify any changes to the channel path identifiers in the list below.

Processor ID . . . : PROC1

CHPID Type Side Until CHPID New CHPID +
00 BL A — 00
10 BL A — 10
80 BL B 90 40
90 BL B — —
***** Bottom of data *****

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

```

- Press Enter to redisplay the panel with the new values. To process the values, press Enter again.

```

Update Channel Path Identifiers
Row 1 of 20
Command ==> _____ Scroll ==> PAGE

Specify any changes to the channel path identifiers in the list below.

Processor ID . . . : PROC1

CHPID Type Side Until CHPID New CHPID +
00 BL A — 00
10 BL A — 10
80 BL B — 40
90 BL B — 50
***** Bottom of data *****

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

```

- ==> Go to the Channel Path List panel of processor PROC1 ( **s** ).
- 2. Change the channel type by specifying CVC in the Type column for the channels (00, 10, 40, 50).

**Change the processor ID**

If you want to change the processor ID:

- Repeat (copy) the processor and specify the new ID.
- Delete the old processor.

## Verify Your Configuration

On the Channel Path List panel, perform *View graphically* ( **h** ) on the four channel paths (00, 10, 40, 50) and verify the changes made. The resulting report is shown in Figure 6 on page 18.

You may also select option 4 on the HCD main panel and create or view a graphical CHPID report.

## Activate Your Configuration

1. Build production IODF.
2. Build IOCDS.

If the processor upgrade changed the SYSTEM value of the corresponding IOCP configuration, it is not possible to perform an IOCDS download on the old processor. The generated IOCP statements are validated according to the configuration rules of the executing processor. In this case you can create an IOCP input data set which can be used with the stand-alone IOCP to generate an IOCDS. If the processor to be upgraded is part of an S/390 microprocessor cluster and HCD is running on another processor of the S/390 microprocessor cluster, you can also download the IOCDS by navigating to the S/390 microprocessor cluster list and start downloading the IOCDS for the target processor from there.

3. Perform POR with the new IOCDS.

---

## Chapter 6. Add Partition to LPAR Processor

Add an additional partition and let the added partition share channels with the existing partitions.

---

### Task

You want to add an additional partition (NEWPART) and let the added partition share channels with the existing partitions.

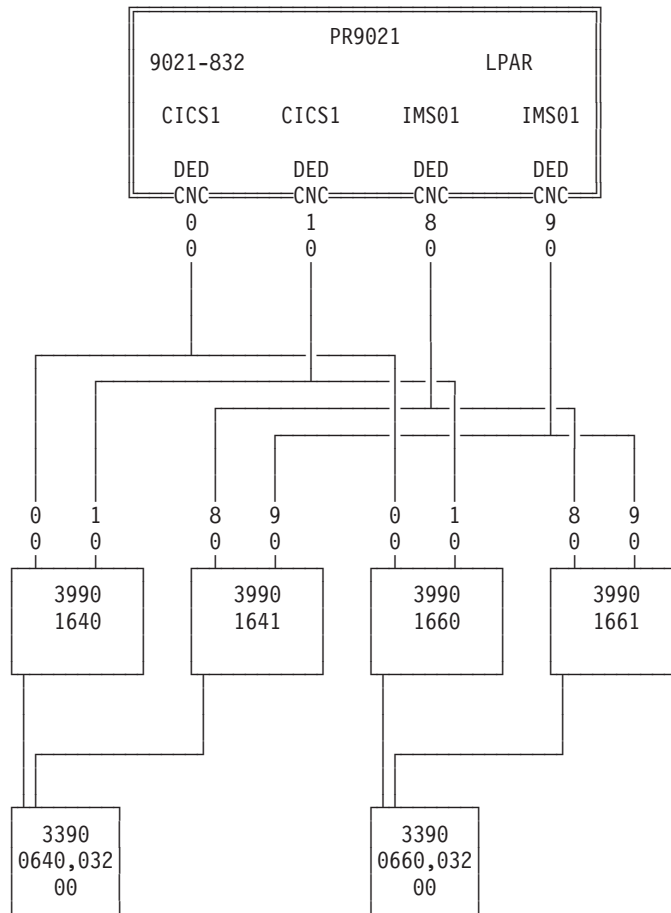


Figure 7. Source Configuration

#### The source configuration contains

- An LPAR processor (PR9021) with two partitions (CICS1 and IMS01)
- Four dedicated CNC channel paths (00, 10, 80, 90)
- Four control units (1640, 1641, 1660, 1661)
- Two strings of 3390s (0640, 0660) with starting unit address 00

You can accomplish the task by:

- Deciding which channels will have the new partition in the access or candidate list, for example, channels 10 and 90 should be shared with the new partition.  
All channel paths belonging to an LCU must have the same channel path operation mode, including channel paths 00 and 80. (HCD takes automatically care of that).
- Changing the channel path operation mode.
- Adding the new partition.

**POR required**

A POR is required when the number of partitions is changed.

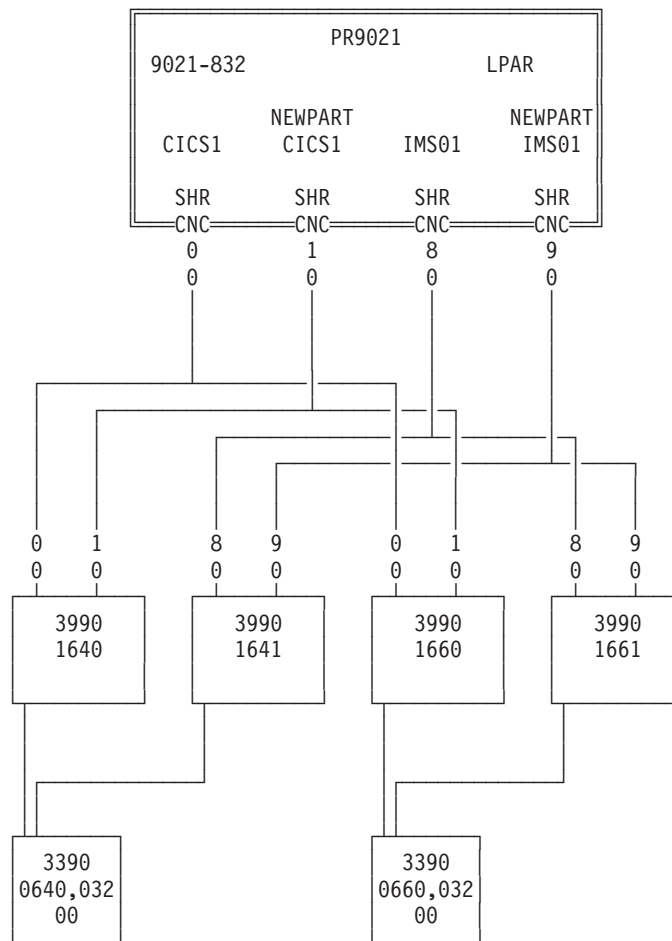


Figure 8. Target Configuration

## Procedure

### Define Your Configuration

==> Go to the Channel Path List panel of processor PR9021 ( **s** ).

1. Change the channel path operation mode for channels 10 and 90 by typing over the Mode column with SHR and press the Enter key.

HCD automatically changes also channels 00 and 80 and asks you to confirm the change by pressing the Enter key on the resulting Confirm Channel Path Change panels (one panel for 00 and 10, one panel for 80 and 90).

==> Go to the Partition List panel of processor PR9021 ( **p** ).

2. F11=Add partition NEWPART.

- On the resulting Add Partition panel, specify:
  - Partition name (NEWPART)
  - Partition number (3)
  - Partition usage (OS)
- On the resulting Update CHPID Access and Candidate Lists panel, perform *Include in access list* ( **a** ) for the channels (10 and 90) that are to be assigned to partition NEWPART.

### Verify Your Configuration

On the Channel Path List panel, perform *View graphically* ( **h** ) on the four channel paths (00, 10, 80, 90) and verify the changes made. The resulting report is shown in Figure 8 on page 22.

To get a list of attached control units and devices, go to the Partition List Panel and perform the appropriate action for partition NEWPART:

- *View attached control units* ( **s** )
- *View attached devices* ( **u** )

### Activate Your Configuration

Because the number of the partitions has changed, dynamic activation is no longer possible. To activate your configuration:

1. Build a production IODF.
2. Build an IOCDS.
3. Define the new partition at the hardware console.
4. Perform POR with the new IOCDS.





---

## Chapter 7. Change BASIC Processor to LPAR (No EMIF)

Change a BASIC processor to an LPAR processor, where:

- One partition has access to the same I/O devices as defined in the original configuration.
- The other partition has access to a subset of the devices.

The processor does not support EMIF, that is, the channels cannot be shared.

---

### Task

You want your target configuration to consist of an LPAR processor where one partition (PROD) has access to the same I/O devices as defined in the original configuration. The other partition (TEST) has access to a subset of the devices. The processor does not support EMIF, that is, the channels cannot be shared.

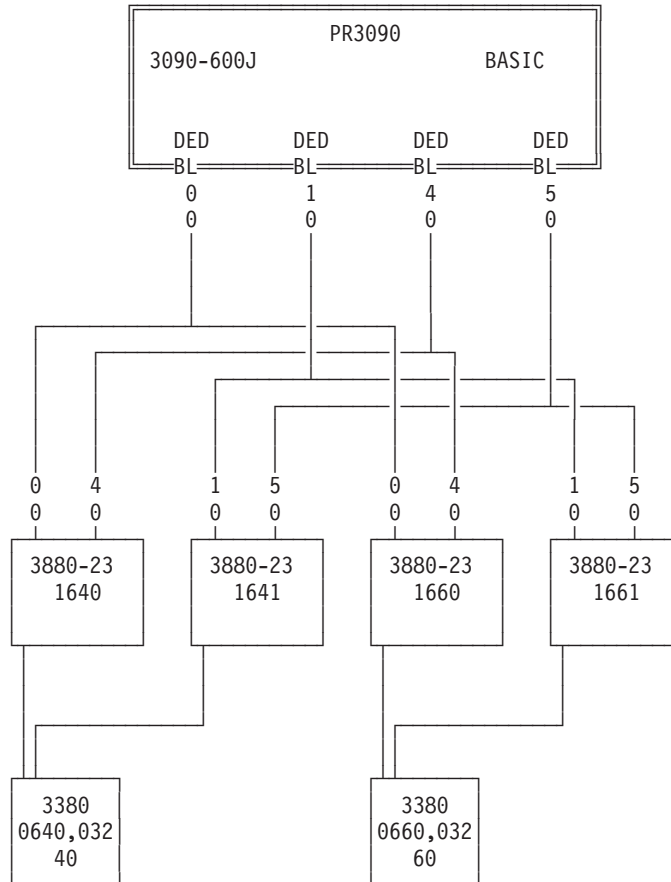


Figure 9. Source Configuration

**The source configuration contains**

- A BASIC processor (PR3090)
- Four dedicated BL channel paths (00, 10, 40, 50)
- Four control units (1640, 1641, 1660, 1661)
- Two strings of 3380s (0640, 0660) with starting unit address 40 and 60

You can accomplish the task by:

- Deciding which channels are to be dedicated to each partition, and which are to be reconfigurable.
- First adding the partitions (even though the processor is still BASIC).
- Including the partitions in the access list of the affected channels.
- Changing the processor mode to LPAR.

**POR required**

A POR is required when the number of partitions is changed.

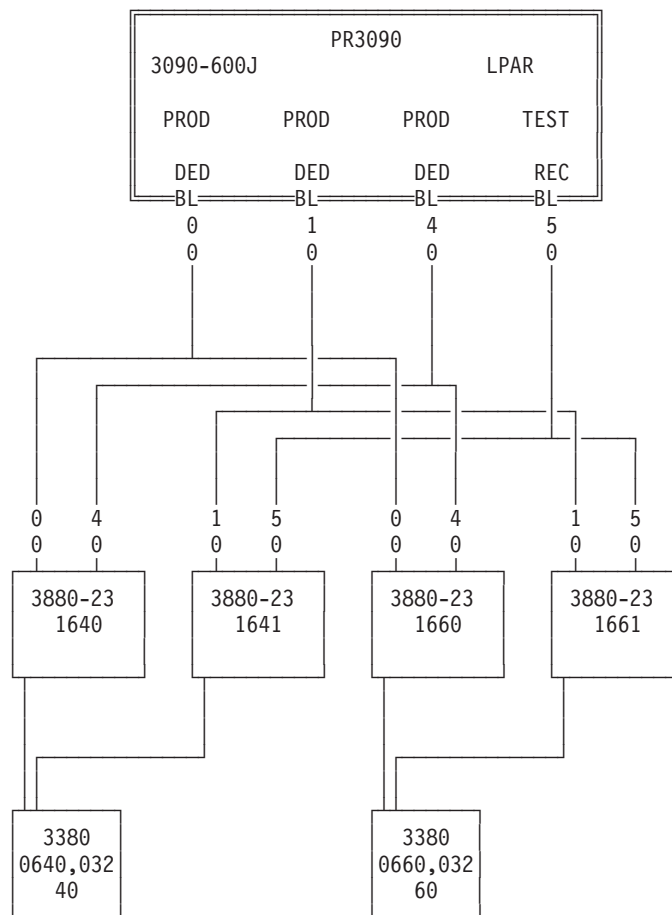


Figure 10. Target Configuration

## Procedure

### Define Your Configuration

==> Go to the Channel Path List panel of processor PR3090 ( **s** ).

1. Change channel path 50 to REC by typing over the Mode field and pressing the Enter key.

==> Go to the Partition List panel of processor PR3090 ( **p** ).

2. F11=Add partition PROD.
  - On the resulting Add Partition panel, specify:
    - Partition name (PROD)
    - Partition number - leave blank
    - Partition usage (OS)
  - On the resulting Update CHPID Access and Candidate Lists panel, perform *Include in access list* ( **a** ) for the channels (00, 10, 40) that are to be assigned to partition PROD.
3. F11=Add partition TEST.
  - On the resulting Add Partition panel, specify:
    - Partition name (TEST)
    - Partition number - leave blank
    - Partition usage (OS)
  - On the resulting Update CHPID Access and Candidate Lists panel, perform *Include in access list* ( **a** ) for the channel (50) that is to be assigned to partition TEST.

==> Go to the Processor List panel.

4. Change the processor mode to LPAR by typing over the entry in the Mode column for processor PR3090.

#### Message CBDA159I

If one of the channels is not connected to a partition, you get message:

```
CBDA159I At least one partition must be associated with channel  
path nn.
```

In this case:

- Leave the message list.
- Press the F12=Cancel key to change the processor mode back to BASIC.
- *Change* ( **c** ) the affected channel on the Channel Path List panel.
- On the resulting Define Access List panel, select a partition.
- Repeat step 4.

### Verify Your Configuration

On the I/O Device List panel, type **h** in the action entry field for the devices (0640, 0660) and verify the changes made. The resulting report is shown in Figure 10 on page 26.

To get a list of the attached control units and devices, go to the Partition List panel and perform the appropriate action for partition TEST:

- *View attached control units* ( **s** )

- *View attached devices* ( **u** )

### **Activate Your Configuration**

Because the number of partitions has changed, dynamic activation is no longer possible. You have to:

1. Build production IODF.
2. Build IOCDS.
3. Setup the processor for LPAR mode at the hardware console.
4. Perform POR with the new IOCDS.

---

## Chapter 8. Change BASIC Processor to LPAR (with EMIF)

Change a BASIC processor to an LPAR processor, where:

- One partition has access to the same I/O devices as defined in the original configuration.
- The other partition has access to a subset of the devices.
- The new processor has been upgraded to support EMIF, and therefore all CNC channels will be shared between both partitions.
- All other channels will remain dedicated.
- The same operating system definition is used for both partitions.

---

### Task

You want your target configuration to consist of an LPAR processor where one partition (PROD) has access to the same I/O devices as defined in the original configuration. The other partition (TEST) should have access to a subset of the devices.

The new processor has been upgraded to support EMIF. All CNC channels will be shared between both partitions. Any other channels will remain dedicated to partition PROD (they are not shown in the configuration illustrations). The same operating system definitions will be used for both partitions.

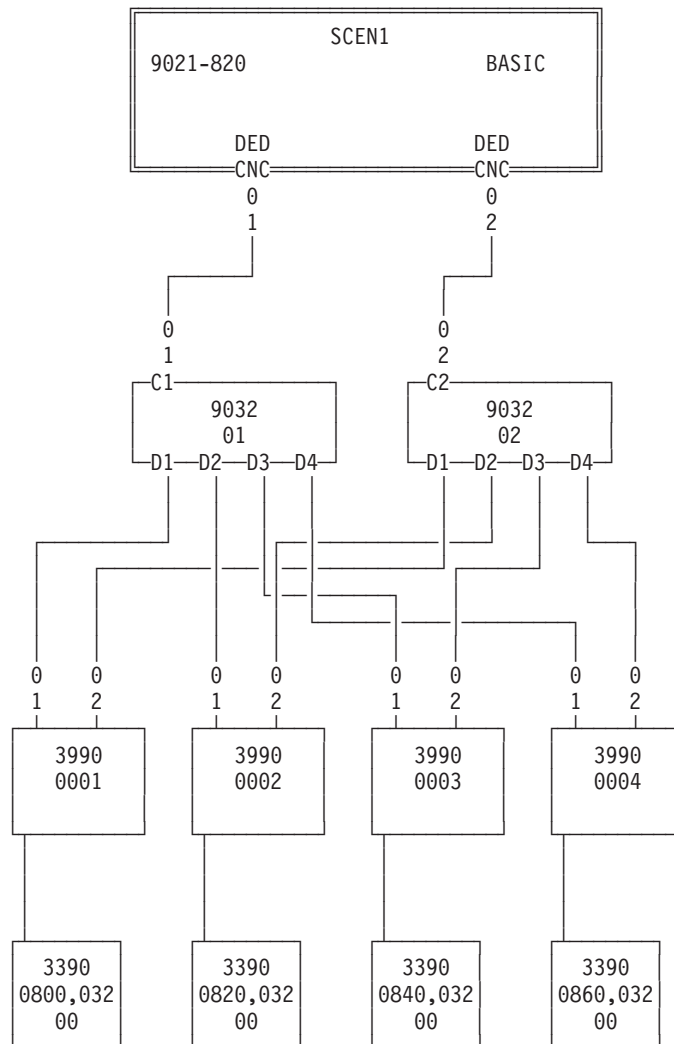


Figure 11. Source Configuration

**The source configuration contains**

- A BASIC processor (SCEN1)
- Two dedicated CNC channel paths (01 and 02)
- Two ESCON Directors (01 and 02)
- Four control units (0001, 0002, 0003, 0004)
- Four strings of 3390s (0800, 0820, 0840, 0860) with starting unit address 00

You can accomplish the task by:

- Changing the support level of the processor (to support EMIF).
- First adding partition (PROD) (even though the processor is still BASIC), and including it in the corresponding access list of the channels.
- Changing the processor mode to LPAR.
- Changing the channel path mode to SHR.
- Adding the second partition (TEST).

- Select the subset of devices (0800-081F, 0820-083F), which should be accessed by partition TEST.

**POR required**  
A POR is required when the number of partitions is changed.

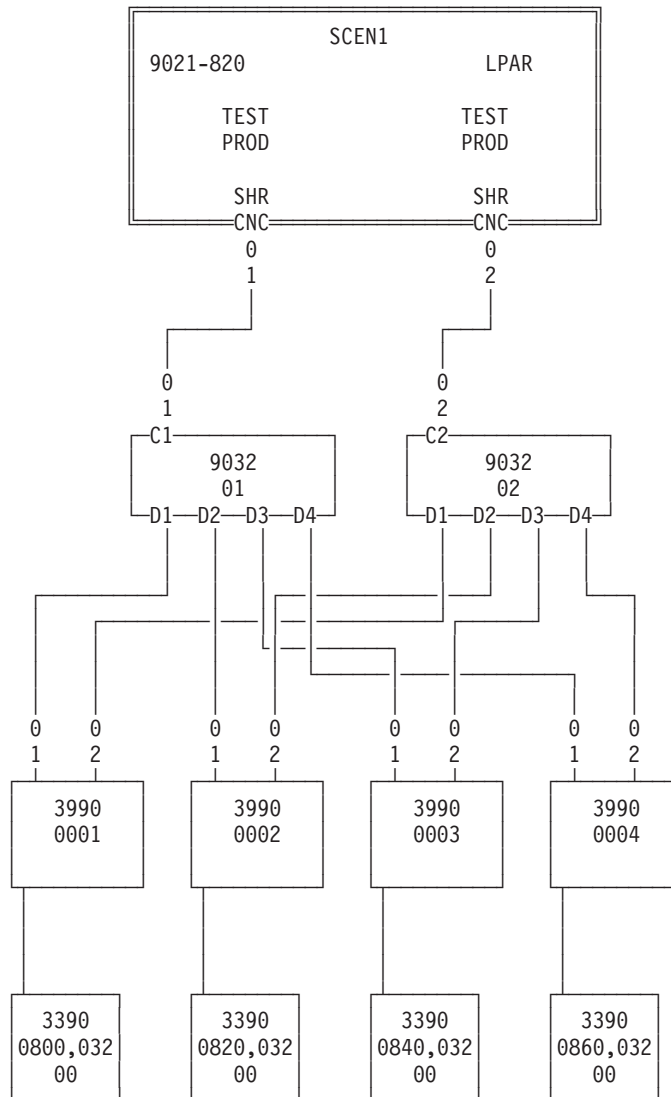


Figure 12. Target Configuration

## Procedure

### Define Your Configuration

==> Go to the Processor List panel.

1. Change ( **c** ) processor SCEN1.
  - On the resulting Change Processor Definition panel, press the Enter key.
  - On the resulting Available Support Levels panel, select a support level that includes EMIF.

- ==> Go to the Partition List panel of processor SCEN1.
2. F11=Add partition PROD.
    - On the resulting Add Partition panel, specify:
      - Partition name (PROD)
      - Partition number - leave blank
      - Partition usage (OS)
    - On the resulting Update CHPID Access and Candidate Lists panel, perform **Include in access list** ( **a** ) for the channels (01, 02) that are to be assigned to partition PROD.
- ==> Go to the Processor List panel.
3. Change the processor mode to LPAR by typing over the Mode column.
- ==> Go to the Channel Path List panel of processor SCEN1.
4. Change the channel mode to SHR by typing over the entries in the Mode column for channels 01 and 02.  
HCD changes the mode for all other channels that are attached to the same logical control unit. Press the Enter key on the Confirm Channel Path Change panel to confirm the changes.
- ==> Go to the Partition List panel of the affected processor.
5. F11=Add partition TEST.
    - On the resulting Add Partition panel, specify:
      - Partition name (TEST)
      - Partition number (2)
      - Partition usage (OS)
    - On the resulting Update CHPID Access and Candidate Lists panel, perform **Include in access list** ( **a** ) for the channels (01, 02) that are to be assigned to partition TEST.
- ==> Go to the I/O Device List panel.
6. Restrict the access of devices (0840-085F, 0860-087F) to partition PROD by including the partition (PROD) in the Explicit Device Candidate List of these devices:
    - Mark the first group of devices by typing a left parenthesis ( **(** ) in the action entry field of the first device (0840) and a right parenthesis ( **)** ) in the action entry field of the last device (085F), and select **CSS group change** ( **g** ).
    - On the resulting Change Device Group / Processor Definition panel, type over the Explicit Device Candidate List column with YES.
    - On the resulting Define Device Candidate List panel, select PROD.
  7. Repeat step 6 for the second group (mark 0860 as the first device and 087F as the last device of the second group).

### Verify Your Configuration

On the Partition List panel, type h (*View graphically*) in the action entry field for the partition (TEST or PROD) and verify the changes made. The resulting report is shown in Figure 12 on page 31.

On the Partition List panel, you can also request a list of all control units and devices attached to the partition by selecting the appropriate action:

- **View attached control units** ( **s** )
- **View attached devices** ( **u** )



## **Activate Your Configuration**

Because the number of the partitions has changed, dynamic activation is no longer possible. You have to:

1. Build production IODF.
2. Build IOCDS.
3. Setup the processor for LPAR mode at the hardware console.
4. Perform POR with the new IOCDS.



## Chapter 9. Change LPAR Processor to BASIC Processor

Change an LPAR processor with two partitions to a BASIC processor.

### Task

You want to change an LPAR processor with two partitions (PART1 and PART2) to a BASIC processor.

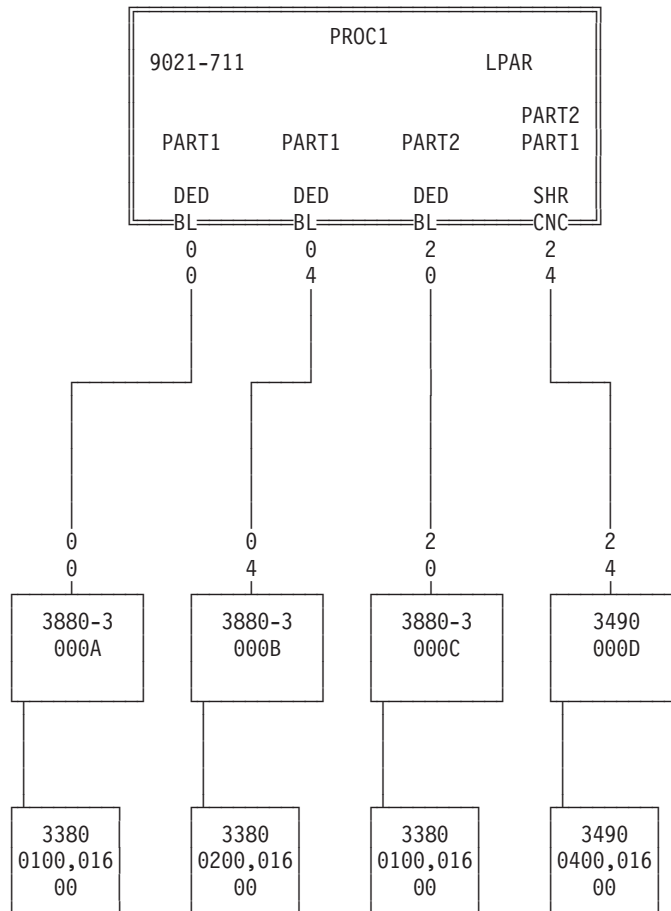


Figure 13. Source Configuration

#### The source configuration contains

Processor (PROC1) with two partitions (PART1 and PART2)  
 Three dedicated channels (00, 04, 20) and one shared channel (24)  
 Four 3880 Control units (000A, 000B, 000C, 000D)  
 Three strings of 3380s (0100, 0200, 0100, 0400). Note that the 3380 device (0100) is defined twice to be accessible by both partitions, but it is physically present only once.

You can accomplish the task by:

- Disconnecting the channels from the CU (000C), which would lead to duplicate device numbers.
- Changing the channel path operation mode to DED for any channel you have defined as shared.
- Changing the processor mode from LPAR to BASIC.
- Deleting the partitions.

**POR required**

A POR is required when the processor mode is changed.

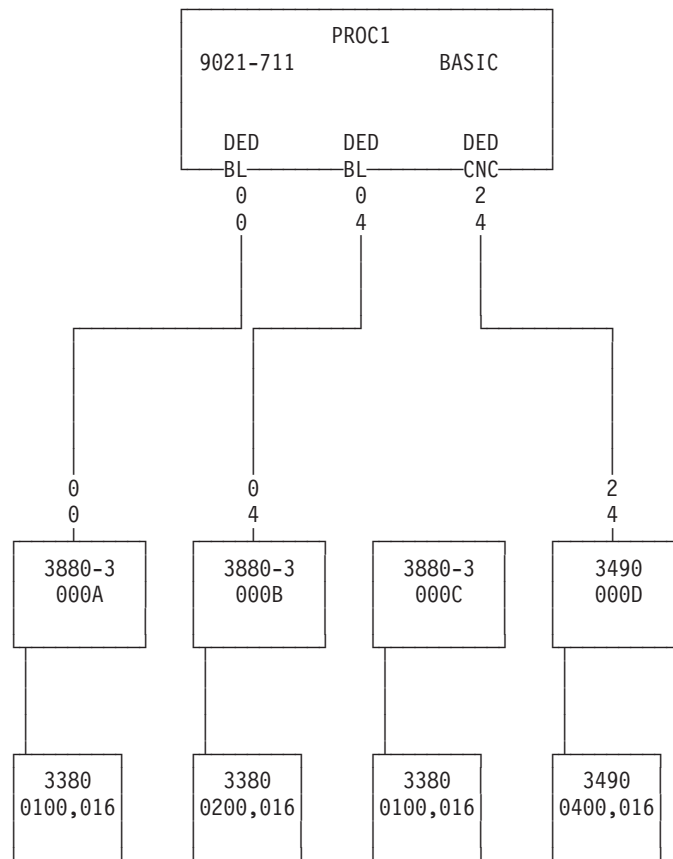


Figure 14. Target Configuration. Channel 20 is still there but is not shown in the picture.

## Procedure

### Define Your Configuration

==> Go to the Control Unit List panel.

1. **Change** ( **c** ) the control unit 000C to avoid duplicate device numbers.
  - On the resulting Change CU Definition panel, accept the values shown.
  - On the resulting Select Processor / Control Unit panel select **Disconnect** ( **n** ) for PROC1.

==> Go to the Channel Path List panel.

2. **Change** ( **c** ) the channel path operation mode for channel 24.

(Before you can perform the change, make sure that the channel is connected only to one partition; otherwise you cannot change the channel path operation mode.)

- On the resulting Change Channel Path Definition panel, accept the values shown.
- On the resulting Define Access List panel, disconnect channel 24 from partition PART2.
- Back on the Channel Path List panel change the channel path operation mode to DED by typing over the Mode column and pressing the Enter key.

==> Go to the Processor List panel.

3. Change the processor mode to BASIC by typing over the Mode field and press the Enter key. You can do this, even though you have partitions defined.

==> Go to the Partition List panel of PROC1.

4. **Delete** ( **d** ) partition PART1 and partition PART2.

#### **Clean-up**

For clean-up purposes you might want to delete control unit 000C and the devices attached to it.

### **Verify Your Configuration**

On the Control Unit List panel, perform *View graphically* ( **h** ) on the four control units (000A, 000B, 000C, 000D) and verify the changes made. The resulting report is shown in Figure 14 on page 36.

### **Activate Your Configuration**

Because the processor mode has been changed a dynamic activation is no longer possible, you have to:

1. Build production IODF.
2. Build IOCDS.
3. Setup the processor for BASIC mode at the hardware console.
4. Perform POR with the new IOCDS.



## Chapter 10. Add an ESCON Director

Integrate an ESCON Director into your configuration and attach existing channels and control units via this ESCON Director.

Your control units are parallel control units, thus you have to configure ESCON channels as parallel channels.

### Task

You want to integrate an ESCON Director into your configuration and attach existing channels and control units via this ESCON Director. Your control units are parallel control units, thus you have to configure ESCON channels as parallel channels.

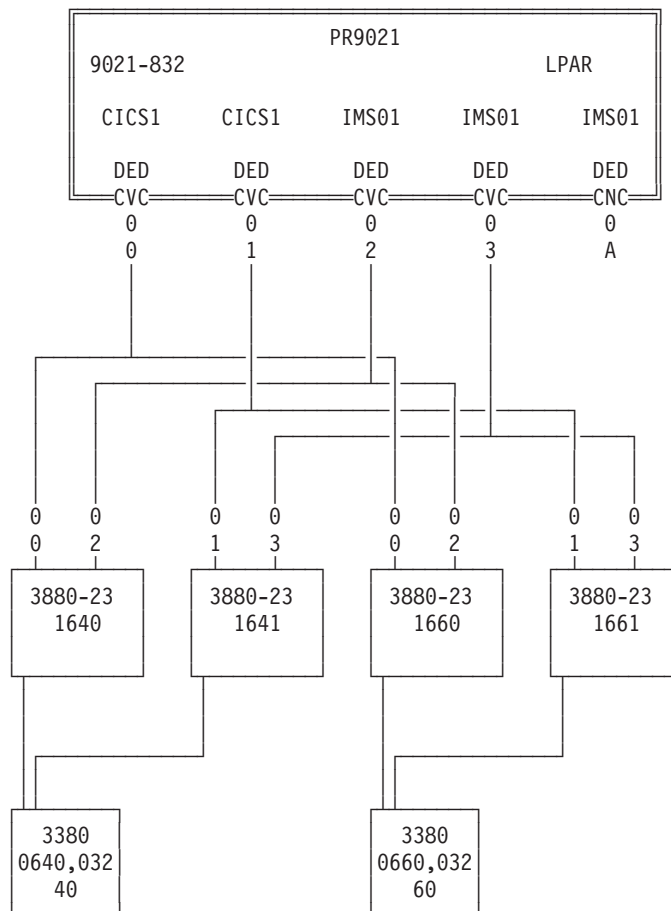


Figure 15. Source Configuration

**The source configuration contains**

LPAR processor (PR9021) with two partitions (CICS1 and IMS01).

Channels of type CVC and one channel (0A) of type CNC required to attach the switch control unit.

Control units connected to both partitions through dedicated channels.

DASD devices attached to two control units each.

System Automation for OS/390 I/O Operations running in the partition the channel of type CNC is connected to (IMS01). The operating system I/O Operations is running on is MVSPROD.

You can accomplish the task by:

- Adding an ESCON Director and defining switch CU and switch device (the switch CU and switch device are required to enable I/O Operations to validate the switch data and return error messages).
- Adding a switch configuration and port matrix.
- Connecting the control units to the switch.
- Connecting the channels to the switch.



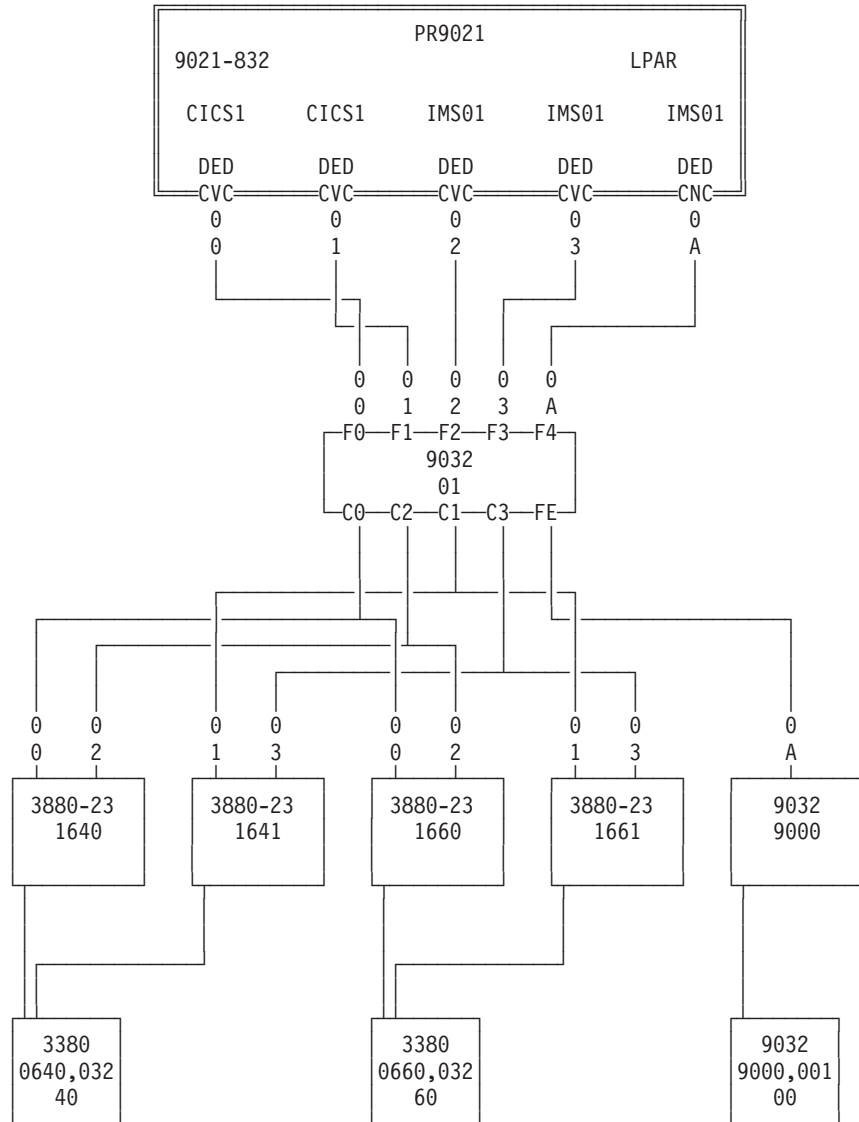


Figure 16. Target Configuration

## Procedure

### Define Your Configuration

==> Go to the Switch List panel.

1. F11=Add switch 01.

- On the resulting Add Switch panel specify:  
Switch ID (01) and switch type (9032)  
Port range installed on your switch (C0-FB)  
Switch CU number (9000) and switch device number (9000)

==> Go to the Switch Configuration List panel for the added switch (01).

2. F11=Add a switch configuration and port matrix.

- On the resulting Add Switch Configuration panel, specify:  
Switch configuration ID (SW01)

Default connection as prohibited

- On the resulting Switch Configuration List panel, select *Work with port matrix* ( **s** ).
- On the resulting Port Matrix panel, type over the entries in the Ded Con column with the port ID of the connected port. In our example, port F0 has a dedicated connection to C0, F1 to C1, and so on.

```

Goto Backup Query Help
-----
Port Matrix          Row 1 of 60 More:  >
Command ==> _____ Scroll ==> PAGE
Select one or more ports, then press Enter.

Switch ID . . . . . : 01
Switch configuration ID . : SW01          Default connection : Prohibit

/ Port Name +          Ded  --Dynamic Connection Ports Cx--
- C0 _____ N F0  \ * * * * *
- C1 _____ N F1  * \ * * * * *
- C2 _____ N F2  * * \ * * * * *
- C3 _____ N F3  * * * \ * * * * *
- C4 _____ N   \ * * * * *
- C5 _____ N   * * * * \ * * * * *
  
```

==> Go to the Control Unit List panel.

3. *Change* ( **c** ) the affected control unit (1640).
  - On the resulting Change Control Unit panel, specify:  
 Connected to switches (01, 01)  
 Ports (C0, C2)
  - On the resulting Select Processor / Control Unit panel perform *Select (connect/change)* ( **s** ) on the affected processor (PR9021).
  - On the resulting Change Control Unit Definition panel specify Link addresses (for channel path 00 link address C0, for channel path 02 link address C2)
  - On the resulting Modify Device Parameters panel accept the values.
4. Repeat step 42 for all control units connected to CVC channels via the switch. Specify the following values:

Control Unit	Switch	Ports	Channel Path/Link Address
1660	01	C0	00 / C0
	01	C2	02 / C2
1641	01	C1	01 / C1
	01	C3	03 / C3
1641	01	C1	01 / C1
	01	C3	03 / C3

5. *Change* ( **c** ) the affected switch control unit (9000).
  - On the resulting Change Control Unit panel, accept the values shown.
  - On the resulting Select Processor / Control Unit panel, perform *Select (connect/change)* ( **s** ) on the affected processor (PR9021).
  - On the resulting Change Control Unit Definition panel specify:  
 Channel path ID (0A)

Link address (FE)  
Unit address (00)

==> Go to the I/O Device List panel.

6. **Change** ( **c** ) the affected switch device (9000).
  - On the resulting Change Device panel, accept the values shown.
  - On the resulting Device / Processor Definition panel, press the Enter key.
  - On the resulting Define Device to Operating System Configuration panel, perform **Select (connect/change)** ( **s** ) on the operating system (MVSPROD).
  - On the resulting Define Device Parameters / Features panel, change or accept the device parameters, as required.
  - Press the Enter key until you are back at the I/O Device List panel.

==> Go to the Channel Path List panel of the affected processor (PR9021).

7. Change the switch IDs of the CNC channel (0A) by typing over the entries in columns:

Dyn Switch  
Entry Switch  
Entry Port

```
Goto Filter Backup Query Help
-----
                          Channel Path List                      Row 1 of 5

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

Processor ID . . . : PR9021
Configuration mode : LPAR

          Dyn +  --Entry +--
/ CHPID Type + Mode + Switch Switch Port Con. Mngd Description
- 00   CVC   DED   ___   01   F0       No   _____
- 01   CVC   DED   ___   01   F1       No   _____
- 02   CVC   DED   ___   01   F2       No   _____
- 03   CVC   DED   ___   01   F3       No   _____
- 0A   CNC   DED   01   01   F4       No   _____
***** BOTTOM OF DATA *****
```

### Migrate switch configurations

Another possibility HCD offers you to define switch configurations is to migrate existing switch configurations (for more details refer to *z/OS HCD User's Guide* ).

A fully defined switch configuration enables HCD to check whether a certain data path is completely defined or not, thus enabling a more complete validation of the IODF at definition time.

### Verify Your Configuration

View a graphical configuration report by selecting switch (01) on the Switch List panel and performing **View graphically** ( **g** ).

### Activate the New Configuration

For a list of steps required to activate a configuration refer to “Chapter 24. Activate a Configuration Dynamically” on page 109.



---

## Chapter 11. Add Serial Channels and ESCON Director

Add new channels of type CNC to a configuration that contains parallel channels of type BL.

Two control units remain connected to the parallel channels, whereas two other control units are connected to the newly defined serial channels through an ESCON Director.

---

### Task

You want to add new channels of type CNC to a source configuration that contains parallel channels of type BL. Two control units remain connected to the parallel channels, whereas the other two control units (in our case 0003 and 0004) are connected to the newly defined serial channels through an ESCON Director.

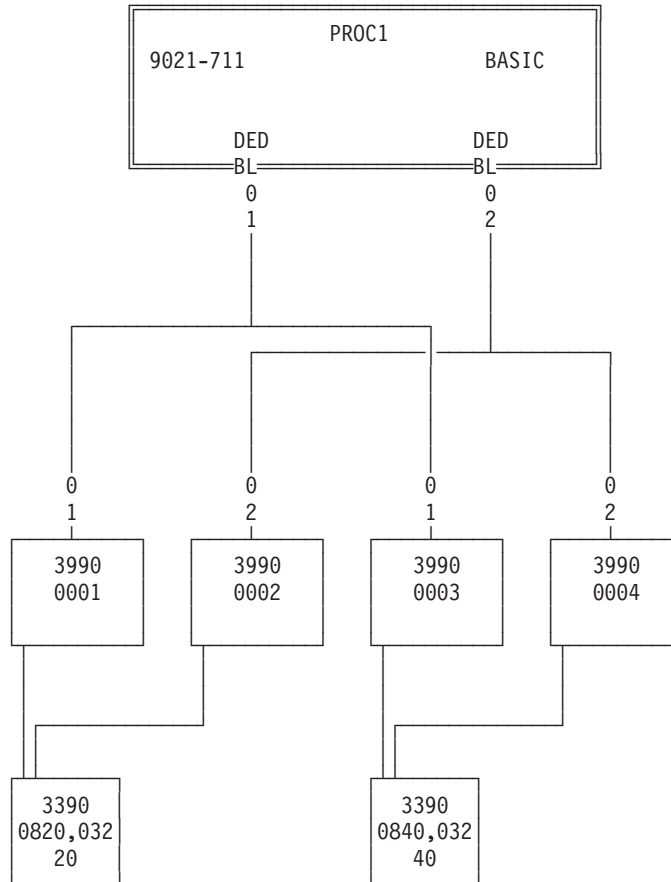


Figure 17. Source Configuration

**The source configuration contains**

Processor (PROC1) in BASIC mode

Parallel channels of type BL

Four 3990 control units (0001, 0002, 0003, 0004)

Two strings of 3390s (0820, 0840) with starting unit address 20 and 40

You can accomplish the task by:

- Defining the ESCON Director (refer to “Chapter 10. Add an ESCON Director” on page 39).
- Changing your channel path and control unit definitions.
- Disconnecting the two control units from the processor.
- Connecting the two control units using a switch to the newly defined channels.

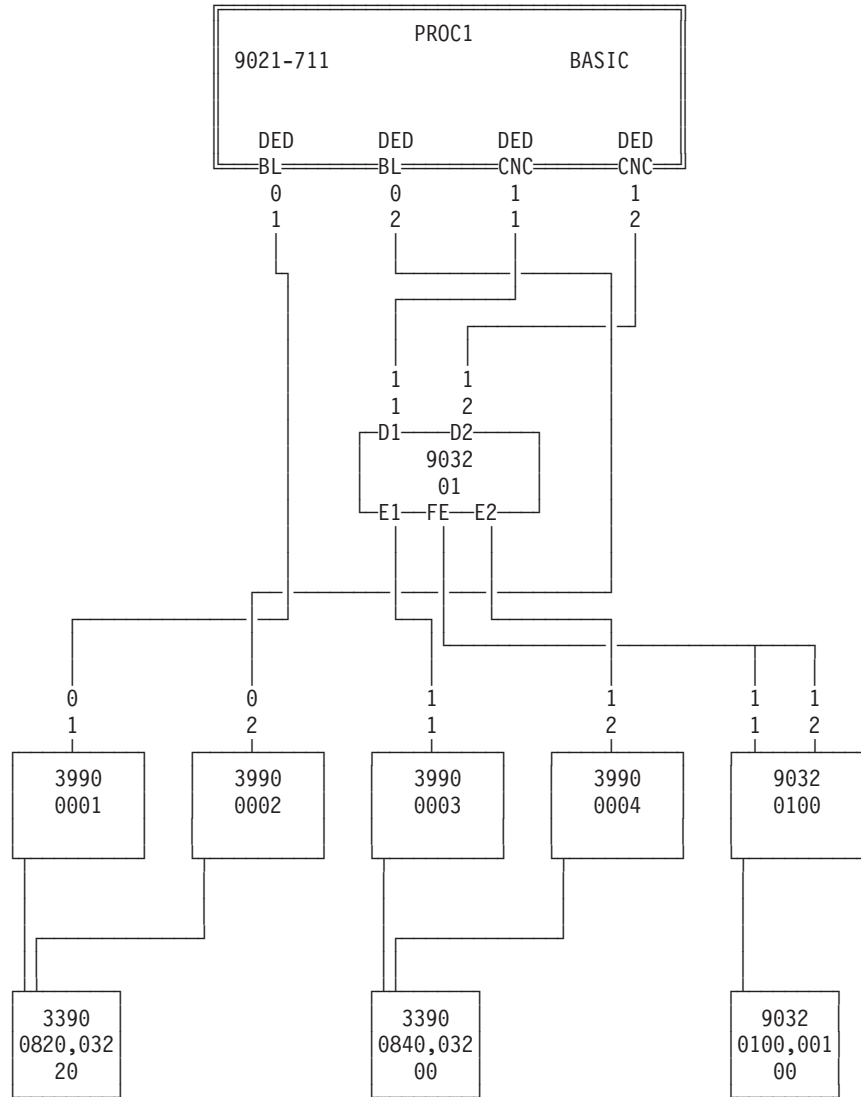


Figure 18. Target Configuration

## Procedure

### Define Your Configuration

==> Go to the Switch List panel.

1. F11=Add switch 01.

- On the resulting Add Switch panel, specify:  
 Switch ID (01) and switch type (9032)  
 Port range installed on your switch (C0-FB)  
 Switch control unit number (100) and switch device number (100)

Complete the switch definition after adding channel paths 11 and 12.

For more details on how to define a switch, refer to "Chapter 10. Add an ESCON Director" on page 39.

==> Go to the Channel Path List panel of the affected processor (PROC1).

2. F11=Add channels 11 and 12.

On the resulting Add Channel Path panel, specify for channels 11 and 12:

Channel	Channel path type	Dynamic switch	Entry switch	Entry port
11	CNC	01	01	D1
12	CNC	01	01	D2

==> Go to the Control Unit List panel.

3. Disconnect the control unit from the processor by performing *Change* (**c**) on control unit 0003.

- On the resulting Change Control Unit Definition panel, accept the values shown.
- On the resulting Select Processor / Control Unit panel, perform *Disconnect* (**n**) from the processor.

4. Repeat step 3 to disconnect control unit 0004.

You have to disconnect both control units (0003 and 0004) from the processor, because the logical control unit consists of more than one control unit.

5. Connect control unit 0003 to the previously defined CNC channels by performing *Change* (**c**) on the control unit.

- On the resulting Change Control Unit Definition panel, specify the connected switch (01) and port (E1) representing the physical connections of the control units.
- On the resulting Select Processor / Control Unit panel, perform *Select (connect/change)* (**s**) on the affected processor (PROC1).
- On the resulting Change Control Unit Definition panel, specify:  
Link address (for channel path 11 link address E1).  
Unit address range starting with 00. This is required for a 3990 connected to a serial ESCON channel.

Accept the modified unit address range.

6. Repeat step 5 for control unit 0004 with the following values:

- Switch (01)
- Port (E2)
- Channel path (12)
- Link address (E2)
- Unit address range (00, 32)

7. Complete the switch definition:

- Connect the switch control unit to processor PROC1 using channel paths 11 and 12. Specify link address FE for each of the channels.
- Connect the switch device to the operating system.

### Verify Your Configuration

View a graphical configuration report by selecting the affected channel paths (01, 02, 11, 12) on the Channel Path List panel and performing *View graphically* (**h**).

### Activate Your Configuration

For a list of steps required to activate a configuration refer to “Chapter 24. Activate a Configuration Dynamically” on page 109.



## Chapter 12. Define a CTC Connection Through an ESCON Director

Define a CTC connection through an ESCON Director using a dynamic connection.

### Task

You want to define a CTC connection through an ESCON Director using a dynamic connection.

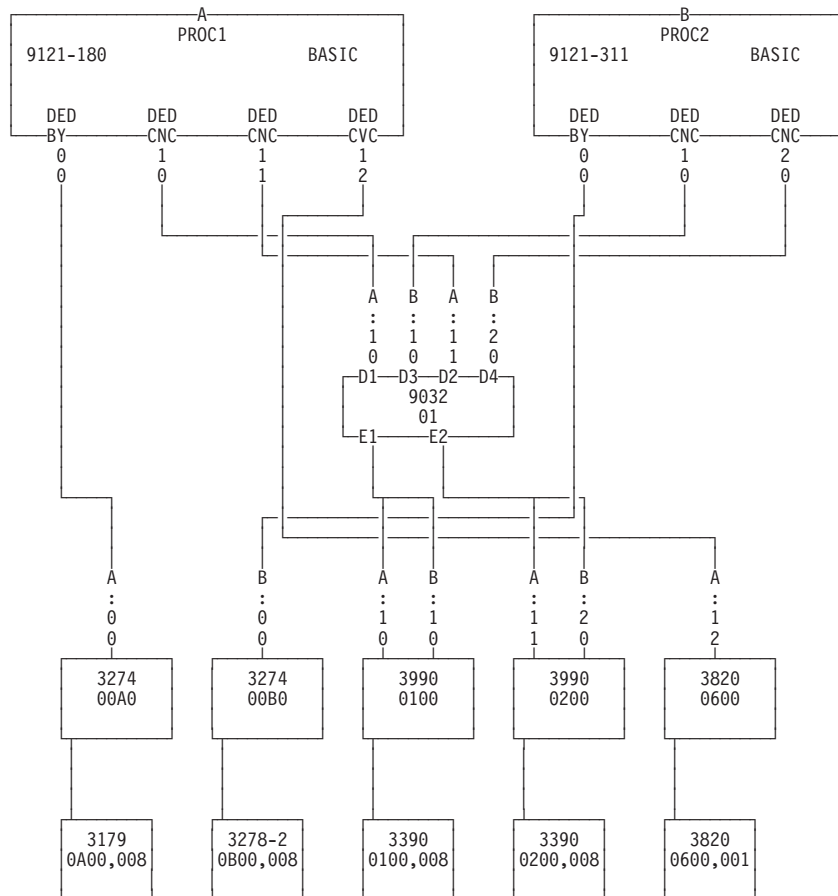


Figure 19. Source Configuration

#### The source configuration contains

- Two processors (PROC1 and PROC2) in BASIC mode
- Multiple channel paths of different types
- A switch (01)
- Two operating systems (MVS1 and MVS2)

A CTC connection requires a CTC channel at one end of the connection and a CNC channel at the other end of the connection. The two channels can be considered as communicating directly with each other in a peer-to-peer fashion. Each channel defines the channel at the other end of a CTC connection as a CTC control unit. This is illustrated in Figure 20.

The CTC devices associated with the control units at both ends of the CTC connection may have different device numbers, but they must have the same unit address.

When you use the ESCON Director to establish a CTC connection, you no longer need a dedicated CTC connection.

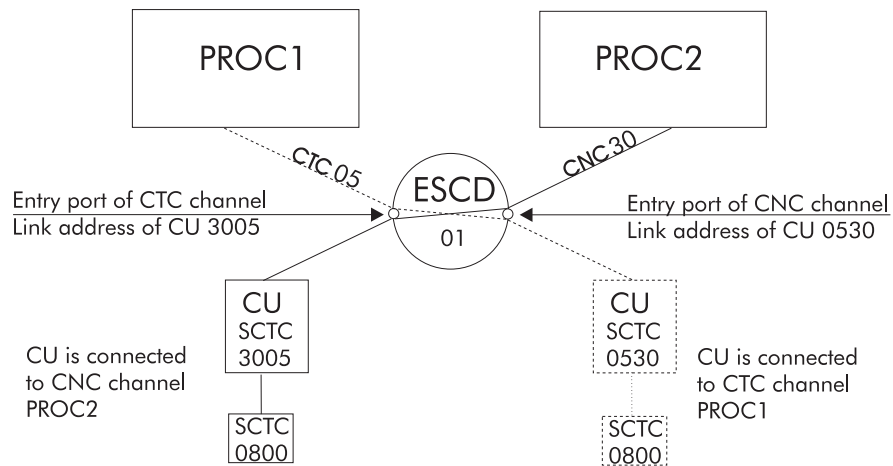


Figure 20. CTC/CNC Connection Established Using a Dynamic Connection. The port address of the channel (entry port) at the other end of the CTC connection is the link address of the control unit representing the channel.

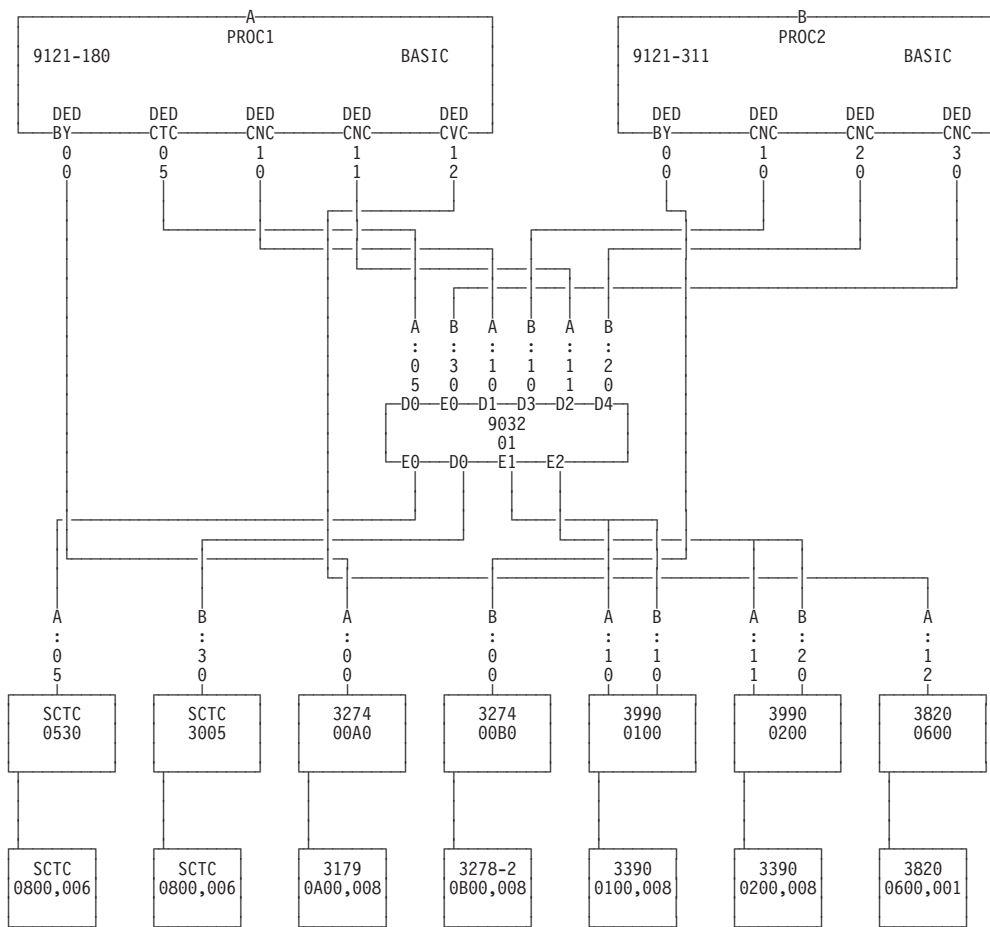


Figure 21. Target Configuration with a CTC/CNC Channel Pair. CTC channel 05 of processor PROC1 connects to CNC channel 30 of processor PROC2. CHPID 05 is connected to switch 01 via port D0, whereas CHPID 30 is connected to port E0 of the same switch.

### SCTL and BCTL devices

It is assumed that your CTC program (for example, VTAM) supports devices running in CTC extended mode (ESCON CTC architecture). Therefore, SCTL devices will be defined.

If your CTC program still requires devices running in CTC basic mode (parallel I/O CTC architecture) you should define BCTL devices, but still connect them to the SCTL control unit.

You can mix SCTL devices and BCTL devices connected to the same SCTL control unit.

You accomplish the task by:

- Defining the CTC channel (05).
- Defining the control unit (0530) representing the channel.
- Defining the devices associated with control unit (0530).
- Defining the CNC channel (30).
- Defining the control unit (3005) representing channel 30.

- Defining the devices associated with control unit (3005)

## Procedure

### Define Your Configuration

==> Go to the Channel Path List panel of the first processor (PROC1).

1. F11=Add the CTC channel (05).
  - On the resulting Add Channel Path panel, specify:
    - Channel path ID (05)
    - Channel path type (CTC)
    - Dynamic switch (01)
    - Entry switch (01)
    - Entry port (D0)

==> Go to the Control Unit List panel.

2. F11=Add a control unit.
  - On the resulting Add Control Unit panel, specify:
    - Control unit number (0530)
    - Control unit type (SCTC)
    - Connected to switch (01)
    - Port (E0)
  - On the resulting Select Processor / Control Unit panel, perform *Select (connect/change)* **S** on processor PROC1.
  - On the resulting Add Control Unit panel, specify:
    - Channel path ID (05)
    - Link address (E0)
    - Unit address (00)
    - Number of units (6)

==> Go to the I/O Device List panel.

3. F11=Add devices.
  - On the resulting Add Device panel, specify:
    - Device number (0800)
    - Number of devices (6)
    - Device type (SCTC)
  - On the resulting Device / Processor Definition panel, select ( **/** ) processor PROC1 and press the Enter key.
  - On the resulting Define Device / Processor panel specify the unit address (00). Press the Enter key twice.
  - On the resulting Define Device to Operating System Configuration panel, perform *Select (connect/change)* **S** on the operating system you want to attach the devices to (MVS1).
  - On the following panels, press the Enter key until you are back at the I/O Device List panel.

==> Go to the Channel Path List panel of the second processor (PROC2).

4. F11=Add the CNC channel (30).
  - On the resulting Add Channel Path panel, specify:
    - Channel path ID (30)
    - Channel path type (CNC)
    - Dynamic switch (01)
    - Entry switch (01)

Entry port (E0)

==> Go to the Control Unit List panel.

5. F11=Add a control unit.

- On the resulting Add Control Unit panel, specify:  
Control unit number (3005)  
Control unit type (SCTC)  
Connected to switch (01)  
Port (D0)
- On the resulting Select Processor / Control Unit panel, perform *Select (connect/change)* **S** on processor PROC2.
- On the resulting Add Control Unit panel, specify:  
Channel path ID (30)  
Link address (D0)  
Unit address (00)  
Number of units (6)

==> Go to the I/O Device List panel.

6. F11=Add the devices.

- On the resulting Add Device panel, specify:  
Device number (0800)  
Number of devices (6)  
Device type (SCTC)
- On the resulting Device / Processor Definition panel, select ( **F** ) processor PROC2 and press the Enter key.
- On the resulting Define Device / Processor panel specify the unit address (00). Press the Enter key twice.
- On the resulting Define Device to Operating System Configuration panel, perform *Select (connect/change)* **S** on the operating system you want to attach the devices to (MVS2).
- On the following panels, press the Enter key until you return to the I/O Device List panel.

### Verify Your Configuration

Select control units 0530 and 3005 on the Control Unit List panel and perform *View related CTC connections* ( **k** ) to verify the changes on the resulting CTC Connection List panel.

```
CTC Connection List      Row 1 of 1 More:  >
Command ==> _____ Scroll ==> PAGE

Select CTC connections to view CTC Messages, then press Enter.

-----CTC side-----      -----CNC side-----
/ Proc.  Part.  Devices CH CU Proc.  Part.  Devices CH CU  Msg.
_ PROC1      0800,6  05 0530 PROC2      0800,6  30 3005
***** Bottom of data *****
```

### Activate Your Configuration

For a list of steps required to activate a configuration refer to “Chapter 24. Activate a Configuration Dynamically” on page 109.



---

## Chapter 13. Change Parallel Channels to Serial Channels

Change channels of type BL to type CNC. The channels and the control units connected to the BL channels will be connected through two switches (for backup purposes).

---

### Task

You want to change channels of type BL to type CNC. The channels and the control units connected to the BL channels will be connected through two switches (for backup purposes).

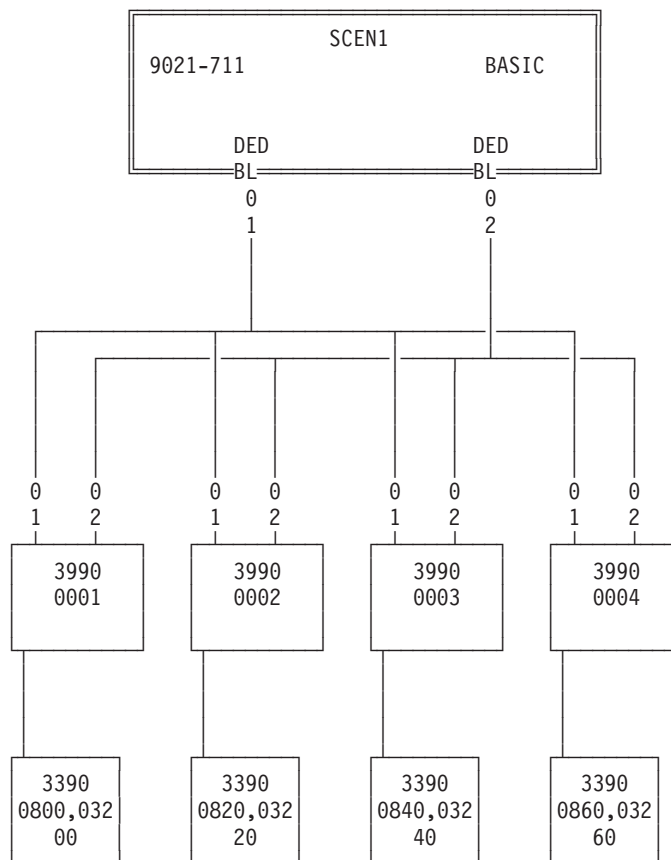


Figure 22. Source Configuration. The CNC channels required to attach the ESCON Director are not shown.

**The source configuration contains**

Processor (SCEN1) in BASIC mode

Parallel channels of type BL (01, 02)

Two channels of type CNC (0A, 0B) required to attach the ESCON Director (not shown in the Figure 22 on page 55)

Four 3990 control units (0001, 002, 003, 0004)

Four strings of 3390s (0800, 0820, 0840, 0860) with starting unit address 00, 20, 40, and 60

HCD offers you two possibilities to perform the change:

- By deleting the channels and adding them again (recommendable if only few devices are affected by the change). This possibility is described in "Procedure 1" on page 57.
- By changing the channel path type (recommendable if you do not want to loose any channel path related information, and if many devices are affected). This possibility is described in "Procedure 2" on page 59.

In this case you have to perform several steps concerning the channel connection and the control unit connection to permanently guarantee consistency of the definitions.



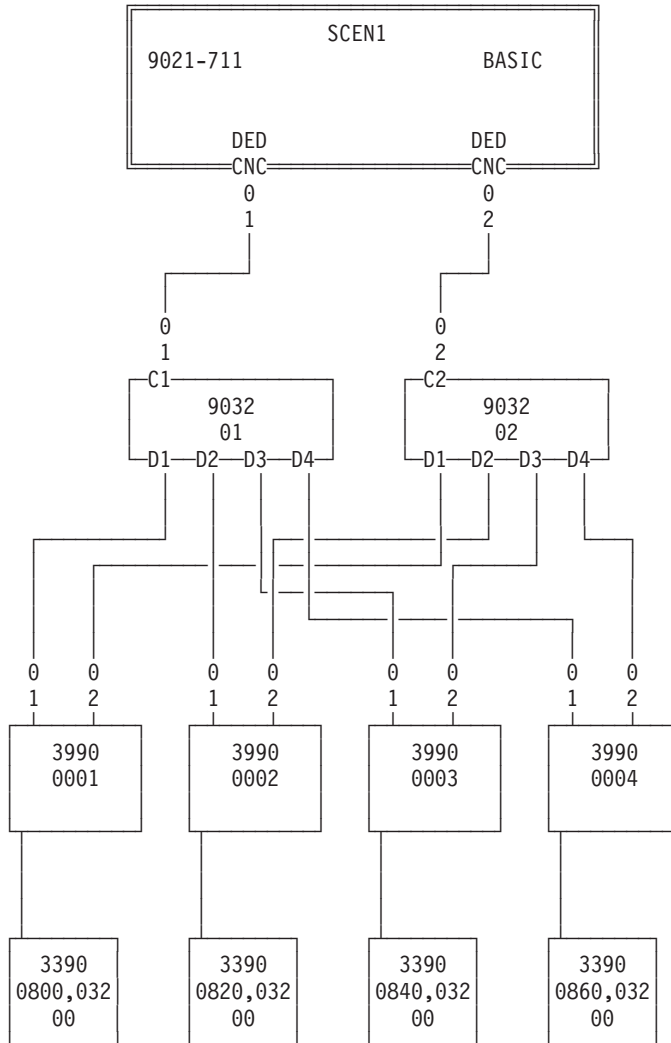


Figure 23. Target Configuration. The switch CU and switch device attachment is not shown.

## Procedure 1

You can accomplish the task by:

- Defining the switches.
- Deleting the affected channels and adding them again with type CNC.
- Changing the definition for all control units attached to the CNC channels.

### Define Your Configuration

==> Go to the Switch List panel.

1. F11=Add switch 01.

- On the resulting Add Switch panel, specify:  
Switch ID (01) and switch type (9032)  
Port range installed on your switch (C0-FB)  
Switch control unit number (100) and switch device number (100)
- Define switch configuration SW01 and the port matrix.
- Connect channel path 0A to switch 01.

- Connect the switch control unit to processor SCEN1 using channel path 0A.
  - Connect the switch device to the operating system.
2. Repeat step 1 on page 57 to add the second switch (02) with channel path 0B.  
For more details on how to define a switch, refer to “Chapter 10. Add an ESCON Director” on page 39.

==> Go to the Channel Path List panel of the affected processor (SCEN1).

3. Write down the channel connections to the CUs. You need this information later.
4. **Delete (d)** the affected channels (01,02).
5. F11=Add the channels again.
  - On the resulting Add Channel Path panel, specify for channel 01:

Channel	Channel path type	Dynamic switch	Entry switch	Entry port
01	CNC	01	01	C1
02	CNC	02	02	C2

==> Go to the Control Unit List panel.

6. **Change (c)** the first control unit (0001).
  - On the resulting Change Control Unit Definition panel, specify the connected switches and ports (01-D1, 02-D1) as shown on the following panel:

Change Control Unit Definition

Specify or revise the following values.

Control unit number . . . : 0001

Control unit type . . . . . 3990            +

Serial number . . . . . \_\_\_\_\_       +

Description . . . . . \_\_\_\_\_

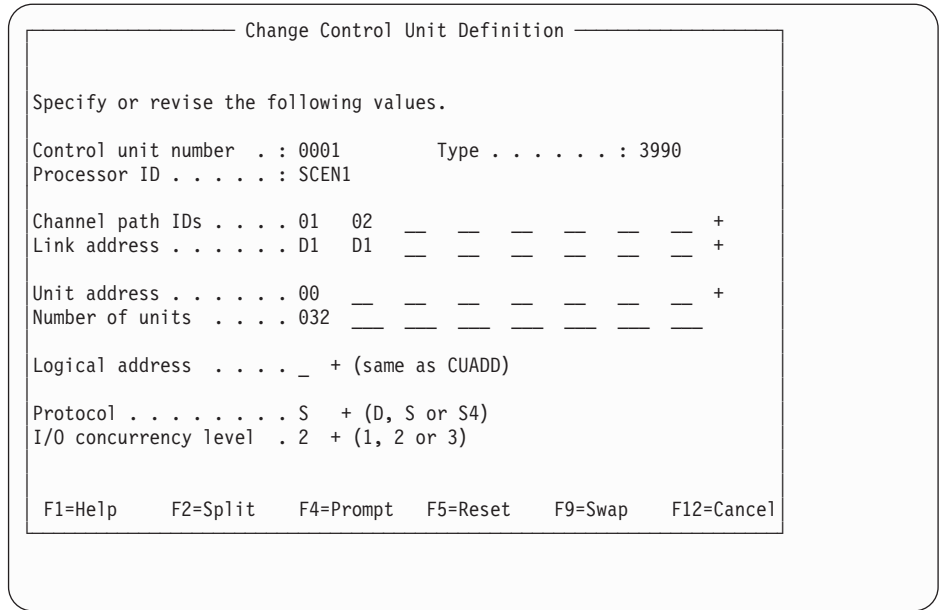
Connected to switches . . . 01 02    \_ \_ \_ \_ \_ +

Ports . . . . . D1 D1    \_ \_ \_ \_ \_ +

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

F12=Cancel

- On the resulting Select Processor / Control Unit panel, perform **Select (connect/change) S** on the affected processor (SCEN1).
- On the resulting Change Control Unit Definition panel, specify channel attachments and link addresses (for channel path 01 link address D1, for channel path 02 link address D1). Specify the unit address range starting with 00. This is required for a 3990 connected to an ESCON channel.



- HCD automatically prompts you to adapt the unit address of the attached devices according to the new address range. Also the Time-out value is set to NO.
7. Repeat step 6 on page 58 for the other control units. Specify the following values:

Control Unit	Switch	Ports	Channel Path/Link Address
0002	01	D2	01 / D2
	02	D2	02 / D2
0003	01	D3	01 / D3
	02	D3	02 / D3
0004	01	D4	01 / D4
	02	D4	02 / D4

## Procedure 2

You may accomplish the task by:

- Defining the switches.
- Changing the channel path type of the affected channels to CVC.
- Connecting the channels to switch.
- Connecting the CUs to switch.
- Changing the channel path type of CVC channels to CNC.
- Changing the definition for all CUs attached to the CNC channels.

### Define Your Configuration

==> Go to the Switch List panel.

1. F11=Add a switch.
  - On the resulting Add Switch panel specify:
    - Switch ID (01) and switch type (9032)
    - Port range installed on your switch (C0-FB)
    - Switch control unit number (100) and switch device number (100)
  - Define switch configuration SW01 and the port matrix.

- Connect channel path 0A to switch 01.
  - Connect the switch control unit to processor SCEN1 using channel path 0A.
  - Connect the switch device to the operating system.
2. Repeat step 1 on page 59 to add the second switch (02) with channel path 0B.  
For more details on how to define a switch, refer to “Chapter 10. Add an ESCON Director” on page 39.
- ==> Go to the Channel Path List panel of the affected processor (SCEN1).
3. Convert the channels temporarily to CVC by typing over the Type column.  
Now you can connect the control units to the switch(es). Select *Work with attached control units* ( **S** ) for one of the affected channels. <sup>1</sup>
4. *Change* ( **C** ) the first control unit (0001):
- On the resulting Change Control Unit Definition panel specify the connected switches and ports (Switch 01 - Port D1, Switch 02 - Port D1).
  - On the resulting Select Processor / Control Unit panel perform *Select (connect/change)* ( **S** ) on the affected processor (SCEN1).
  - On the resulting Change Control Unit Definition panel, specify channel attachments and link addresses (for channel path 01 link address D1, for channel path 02 link address D1). Specify the unit address range starting with 00. This is required for a 3990 connected to an ESCON channel.
  - HCD prompts you to adapt the unit address of the attached devices according to the new address range. Also the Time-out value is set to NO.

For the other control units:

- Specify the connected switches and ports on the Change Control Unit Definition panel.  
For control unit 0002: Switch 01 - Port D2, Switch 02 - Port D2  
For control unit 0003: Switch 01 - Port D3, Switch 02 - Port D3  
For control unit 0004: Switch 01 - Port D4, Switch 02 - Port D4
- Temporarily accept the same link address for all control units as suggested by the dialog, and the old unit address range.

==> Go to the Channel Path List panel.

5. Specify the dynamic switch for the channels by typing over the entries on the panel.  
For channel 01: Dynamic switch 01  
For channel 02: Dynamic switch 02

==> Go to the Control Unit List panel.

6. *Change* ( **C** ) control unit 0002 (the first one which has already been defined correctly).
- On the resulting Change Control Unit Definition panel, accept the values shown.
  - On the resulting Select Processor / Control Unit panel select the affected processor (SCEN1).
  - On the resulting Change Control Unit Definition panel correct the link address (D2).

---

1. If, in your configuration, not all of the chained control units are attached to the same channels you may use the same action for other channels or you may select the Control Unit List from the Define, Modify, or View Configuration Data panel to get all control units.

- On the resulting Modify Device Parameters panel change the Time-out value to NO.
  - Do not yet change the unit address range.
7. Repeat step 6 on page 60 for the other control units (0003, 0004). Specify the following link address:
- For control unit 0003: Link address D3
  - For control unit 0004: Link address D4

==> Go to the Channel Path List panel.

8. Convert the channels to CNC by typing over the entries in the Type column.
9. Specify entry switch and entry port by typing over the fields.
  - For channel 01: Entry switch 01, Entry port C1
  - For channel 02: Entry switch 02, Entry port C2

==> Go to the Control Unit List panel.

10. **Change** ( **c** ) the first control unit (0001).
  - On the resulting Change Control Unit Definition panel, accept the values shown.
  - On the resulting Select Processor / Control Unit panel, select the affected processor (SCEN1).
  - On the resulting Change Control Unit Definition panel, change the starting address of the unit address range to 00.
11. Repeat step 10 for the other control units (0002 to 0004).

### Verify Your Configuration

- Create or view a graphical CHPID configuration report to verify the changes made.
- Build production IODF. During this step additional validation, which can be performed only at this time, is done (for example the switch connections are validated).

### Activate the New Configuration

For a list of steps required to activate a configuration refer to “Chapter 24. Activate a Configuration Dynamically” on page 109.



## Chapter 14. Change 3880 to 3990 CUs and CVC to CNC Channels

Replace your 3880 control units and devices with 3990 control units and devices.

As your new 3990 hardware (channel, control unit, device) supports the ESCON Architecture protocol, you want to use CNC channels.

### Task

You want to replace your 3880 control units and devices with 3990 control units and devices. As your new 3990 hardware (channel, control unit, device) supports the ESCON Architecture protocol, you want to use CNC channels.

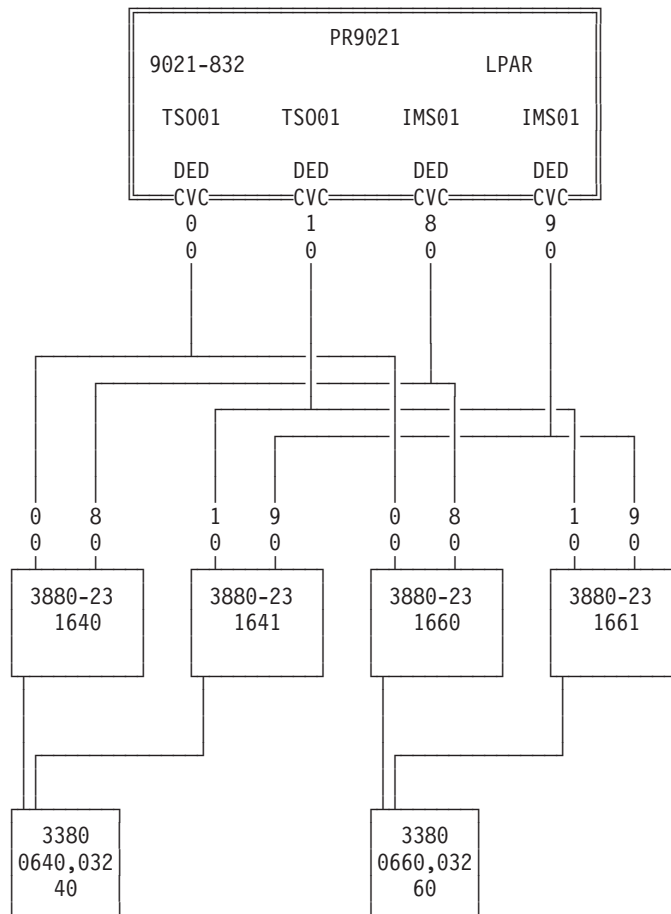


Figure 24. Source Configuration

**The source configuration contains**

LPAR processor (PR9021) with two partitions (TSO01 and IMS01)  
Four channels of type CVC (00, 10, 80, 90)  
Four control units (1640, 1641, 1660, 1661), which are accessible by both partitions through dedicated channels (DED) and ESCON converters (CVC).

You can accomplish the task by:

- Enabling the affected CUs for CNC attachment.
- Changing the channel path type from CVC to CNC.
- Changing the control unit type from 3880 to 3990.
- Changing the device type from 3380 to 3390. Note that 3380 devices can be attached to 3990 control units, whereas a 3390 cannot be attached to a 3880-23. Therefore, first change the control unit type and then the device type.

**Logical addressing**

As each control unit in your configuration is accessible by both partitions, your 3990 control unit must support logical addressing. This is necessary because the ESCON protocol requires that the unit address range starts with 00 for all four control units and the path to the device (for example with unit address 00) must be unique. You achieve this by specifying a logical address (CUADD) for your new control units.



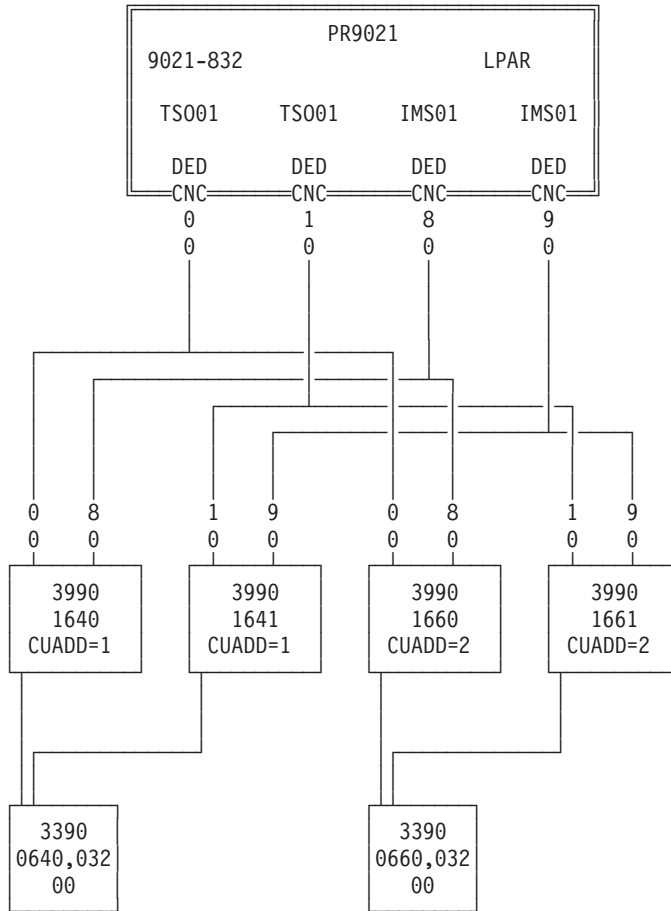


Figure 25. Target Configuration

## Procedure

### Define Your Configuration

==> Go to the Channel Path List panel of the affected processor (PR9021).

- Disconnect the channel paths:
  - Select *Work with attached control units* (**s**) for the affected channels (00 for control units 1640 and 1660; 10 for control units 1641 and 1661).
  - On the resulting Control Unit List panel perform *Disconnect from processor* (**n**) on the control units.
- On the Channel Path List panel, change the channel path type of channels 00, 10, 80, 90 from CVC to CNC by typing over the entries in the Type column.

#### Alternative procedure

Another way to accomplish the previous two steps is to:

- Delete* (**d**) the affected channels.
- F11=Add the channels again with type CNC.

==> Go to the Control Unit List panel.

3. **Change** ( **c** ) the definition for control unit 1640.
  - On the resulting Change Control Unit Definition panel, specify CU type 3990.
  - On the resulting Select Processor / Control Unit panel, perform *Select (connect/change)* ( **s** ) on processor PR9021.
  - On the resulting Change Control Unit Definition panel, specify connected channel paths (00, 80), unit address range (starting with 00) and logical address (1).
4. Repeat step 3 for all other control units with the following values:

Control Unit	CU Type	CHPID	Starting Unit Address	Logical Address (CUADD)
1641	3390	10, 90	00	1
1660	3390	00, 80	00	2
1661	3390	10, 90	00	2

==> Go to the I/O Device List panel.

If you go there from the Control Unit List panel and select *Work with attached devices* ( **s** ), the result is an already filtered I/O Device List for control units 1640 and 1660.

5. Change the device type with a group action:
  - Specify a left parenthesis ( **(** ) in the action entry field of the first device and a right parenthesis ( **)** ) in the action entry field of the last device of the group and select *Device type group change* ( **t** ).
  - On the resulting Device Type Group Change panel, specify the new device type (3390).

### Verify Your Configuration

Create or view a graphical configuration report to validate the changes made. On the I/O Device List panel, select one device from each group (for example, 0640 and 0660) and select *View graphically* ( **h** ). The report shown in Figure 25 on page 65 is displayed.

### Activate Your Configuration

For a list of steps required to activate a configuration refer to “Chapter 24. Activate a Configuration Dynamically” on page 109.

---

## Chapter 15. Add Coupling Facility

Define the connections between your partitioned production system and two processors that are used for coupling facility (CF) support only.

---

### Task

You want to define the connections between your partitioned production system (PROC1) and two processors (CF1 and CF2) that are used for coupling facility (CF) support only.

**The source configuration contains**

One LPAR processor (PROC1) with two partitions (PART1 and PART2)

You can accomplish the task by:

- Defining two separated 9674 processors (CF1 and CF2) with a coupling facility partition (CFPART) each.
- Defining the processors with coupling facility receiver (CFR) channels only.
- Defining coupling facility sender (CFS) channels on the partitioned processor (PROC1).
- Connecting the CFR channels to the CFS channels (or vice versa). HCD then allocates the CFS control units and two CFS devices for each CFS/CFR connection.

**Recommendation**

Start with defining the connection from the CFR side, as this will reduce the number of panels you have to go through. This is because in most cases there will be just two CF partitions, but more partitions running normal operating systems.

### Procedure

#### Define Your Configuration

==> Go to the Processor List panel.

1. **Change** ( **c** ) processor PROC1.
  - On the resulting Change Processor Definition panel, press the Enter key.
  - On the resulting Available Support Levels panel, select a support level that includes CF channels.

==> Go to the Channel Path List panel.

2. F11=Add the CFS channel path (70) for PROC1.

On the resulting Add Channel Path panel, specify:

Channel path ID (70)  
Number of CHPIDs (1)  
Channel path type (CFS)  
Channel path operation mode (DED)

As the CF channel topology is point-to-point, do not specify any switch information (dynamic switch, entry switch, or entry port).

- Repeat step 2 on page 67 for channel paths 71, 72, and 73. Specify the relevant channel path ID. The other values (1, CFS, and DED) are the same as for channel path 70.

==> Go to the Processor List panel.

- F11=Add a CF processor.
  - On the resulting Add Processor panel, specify:
    - Processor ID (CF1)
    - Processor type (9674)
    - Processor model (C01)
    - Processor mode (LPAR)

Before you can define CFR channels you have to define a partition of type CF.

==> Go to the Partition List panel.

- F11=Add the new partition (CFPART).
  - On the resulting Add Partition panel, specify:
    - Partition name (CFPART)
    - Partition number (see below)
    - Partition usage (CF)

#### **Partition number**

Make sure that you use the same partition number that is used in the Coupling Facility Resource Manager (CFRM) policy statements.

==> Go to the Channel Path List panel of CF1.

- F11=Add a CFR channel.
  - On the resulting Add Channel Path panel, specify:
    - Channel path ID (10)
    - Number of CHPIDs (1)
    - Channel path type (CFR)
    - Channel path operation mode (DED)
  - On the resulting Define Access List panel, select CFPART.
- Repeat step 6 for channel path 12. Specify 12 as channel path ID. The other values (1, CFR, and DED) are the same as for channel path 10.
- Repeat steps 4 to 6 for processor (CF2). The values, apart from the processor ID CF2, are the same as for CF1.

==> Go to the Channel Path List panel of CF1.

- Connect CFR and CFS channels.
  - Use action code **f** on any action entry field (or enter the command SHOWCF on the HCD command line).
  - On the resulting CF Channel Path Connectivity List panel, select channel 10 and *Connect to CF Channel Path* (**p**).
  - On the resulting Connect to CF Channel Path panel, specify:
    - Destination processor ID (PROC1).
    - Destination channel path ID:
      - 70 (when the panel is displayed for channel 10)
      - 71 (when the panel is displayed for channel 12)

- On the resulting Add CF Control Unit and Devices panel, accept or revise the specified CU number (FFFD and FFFE) and devices numbers (FFF8,004 and FFFC,004).
- Repeat step 9 on page 68 for channel 12. The destination channel path ID is 71.

==> Go to the Channel Path List panel of CF2.

- Repeat step 9 on page 68 for processor CF2.

### Activate Your Configuration

The CF changes in this scenario are hardware-only changes. To activate the configuration of the production system (9021-711):

1. Create an IOCP input data set from the production IODE.
2. Download the IOCP input data set on tape or diskette.
3. Load the IOCP input data set on processor CF1.
4. Perform a stand-alone IOCP.

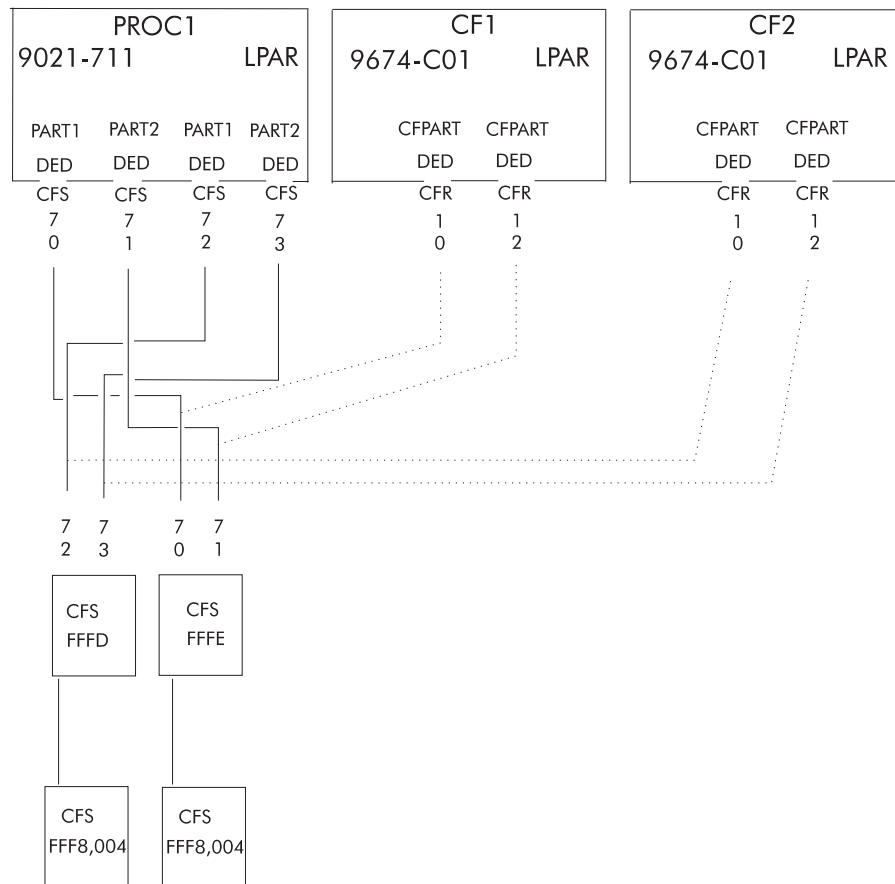


Figure 26. Configuration with Coupling Facility



## Chapter 16. Migration to a FICON Bridge Card

Migrate from an ESCON channel path to a FICON path utilizing the *Move ports* and *Aggregate channel path* functions.

### Task

You want to migrate from an ESCON channel path to a FICON path using a FICON Bridge card on a 9032-5 ESCON Director.

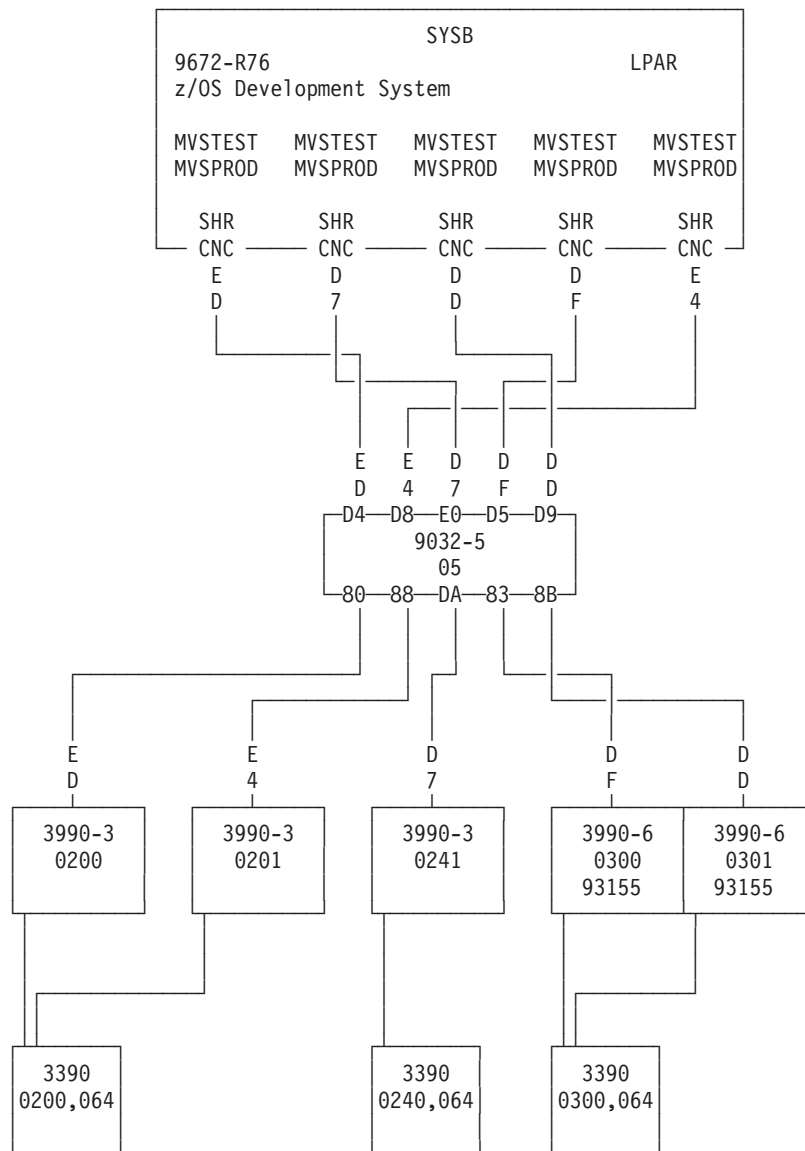


Figure 27. Source Configuration

**The source configuration contains**

A 9032-5 switch

A channel path with an ID (here "ED") capable of accommodating an FCV (FICON to ESCON conversion) type. (To check the IDs, start the *Add Channel Path* dialog, type in FCV as the CHPID type and press F4 for a prompt.)

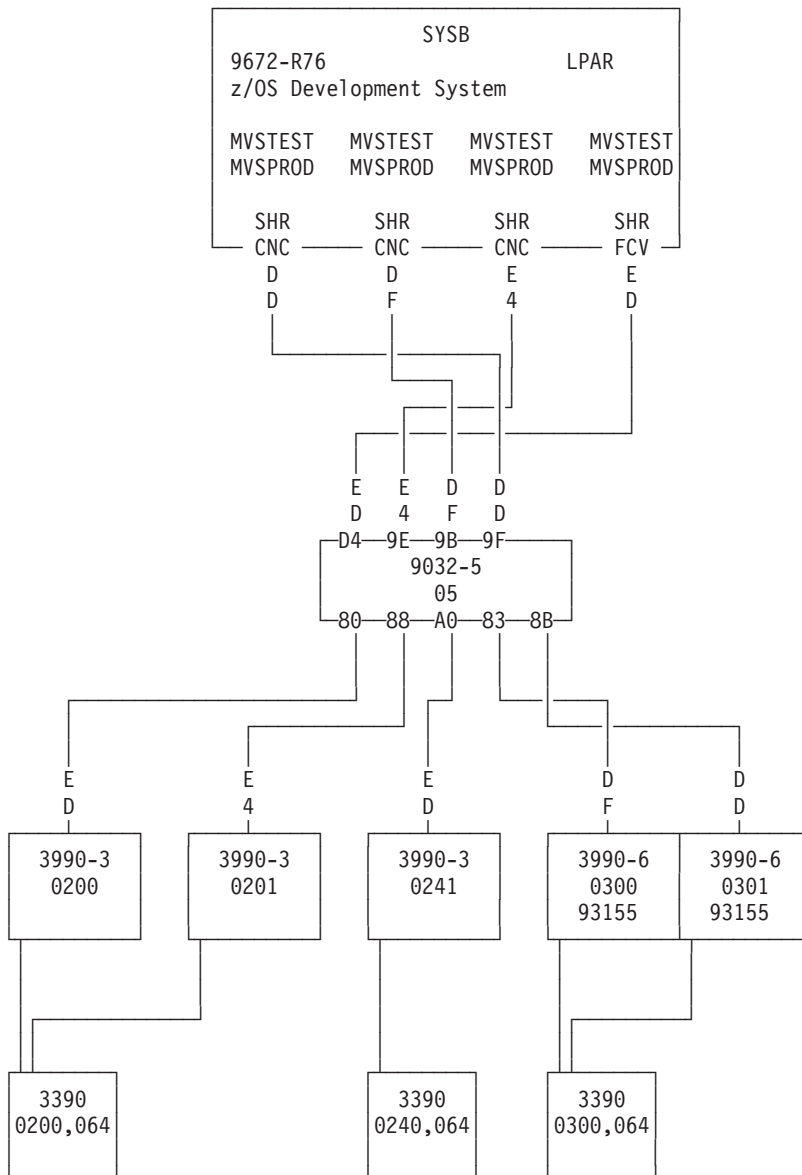


Figure 28. Target Configuration

The target configuration includes the following changes:

- Port D4 is connected to CHPID ED
- Ports D5 - DB are set to *Uninstalled*



- CHPIDs DD, DF and E4 have been moved to ports in the range of 9B-A1
- CHPID D7 has been aggregated with CHPID ED (in this example, control unit 0241 has been moved)

You can accomplish the task by:

- Freeing the ports used by the FICON Bridge card on the 9036-5 Director. This is supported by the *Move ports* action.
- Setting ports D5-DB to *Uninstalled*.
- Changing the CHPID type to FCV. In this example the ID "ED" is already FCV capable. If this were not so, you would need to use the *Change the CHPID* action to change the ID of the CHPID appropriately.
- Aggregating channel D7 to the new FCV channel.

## Procedure

### Define Your Configuration

==> Go to the *Switch List* panel

1. Select the *Move ports* action **x** against a target switch D5 and type in the first column the ports to be moved:  
     source switch D5  
     source port DB  
     target port 9B

Note that when moving to a different switch, all ports on a path must be moved together.

==> Go to the *Port List* panel for the affected switch (05)

2. Scroll to port D5 (or use Locate D5 in the command line), overwrite the H column (for Hardware Status) for ports D5-DB to N, and press Enter.

==> Go to the *Channel Path List* panel of the affected processor (SYSB) (**s**)

3. Change channel path ED to FCV by overtyping the *Type* field with FCV  
     verify the entry switch 05  
     verify the entry port D4  
     press Enter
4. Initiate the aggregate action on channel ED with **g** and press Enter.
5. Type as source channel D7 and press Enter (you can obtain a list of eligible CHPIDs via the prompt).

### Verify Your Configuration

Create or view a graphical configuration report to validate the changes made. On the Channel Path List panel select the affected channel paths (DD, DF, E4, ED) and select *View graphically* (**h**). The report shown in Figure 28 on page 72 is displayed.

### Activate Your Configuration

For a list of steps required to activate a configuration refer to "Chapter 24. Activate a Configuration Dynamically" on page 109.



---

## Chapter 17. Merge IODFs (with Separate Device Pool)

Extract and merge two processor configurations and two operating system configurations from two IODFs into a separate IODE.

---

### Task

You want to extract and merge two processor configurations and two operating system configurations from two IODFs into a separate IODE.

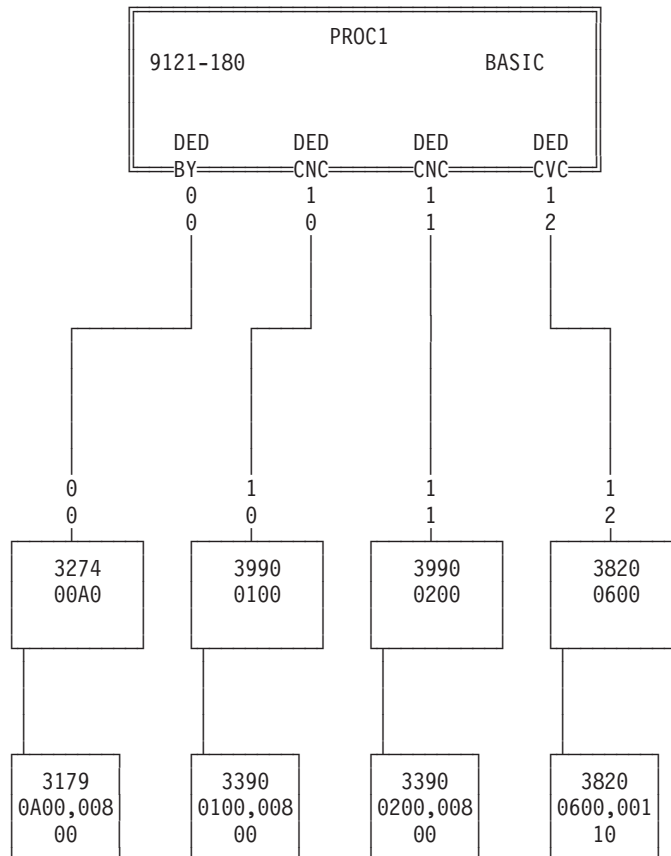


Figure 29. Source configuration — IODF01 with operating system MVS1

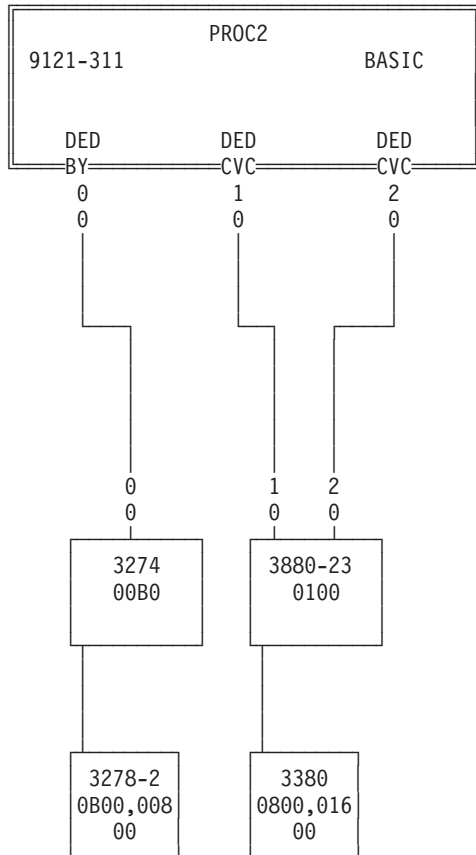


Figure 30. Source configuration — IODF02 with operating system MVS2

**The source configuration contains**

- Two separate configurations with a BASIC processor each (PROC1, PROC2)
- One operating system in each processor (MVS1, MVS2)
- Multiple control units and devices

You can accomplish the task by:

- Creating a new work IODF (IODF03) large enough to contain both source IODFs.
- Copying processor PROC1 from IODF01 into IODF03.
- Copying processor PROC2 from IODF02 into IODF03.
- Copying operating system MVS1 from IODF01 into IODF03.
- Copying operating system MVS2 from IODF02 into IODF03.

If you merely want to copy the configuration from IODF02 to IODF01 omit steps 1 to 3 and perform steps 4 to 5.

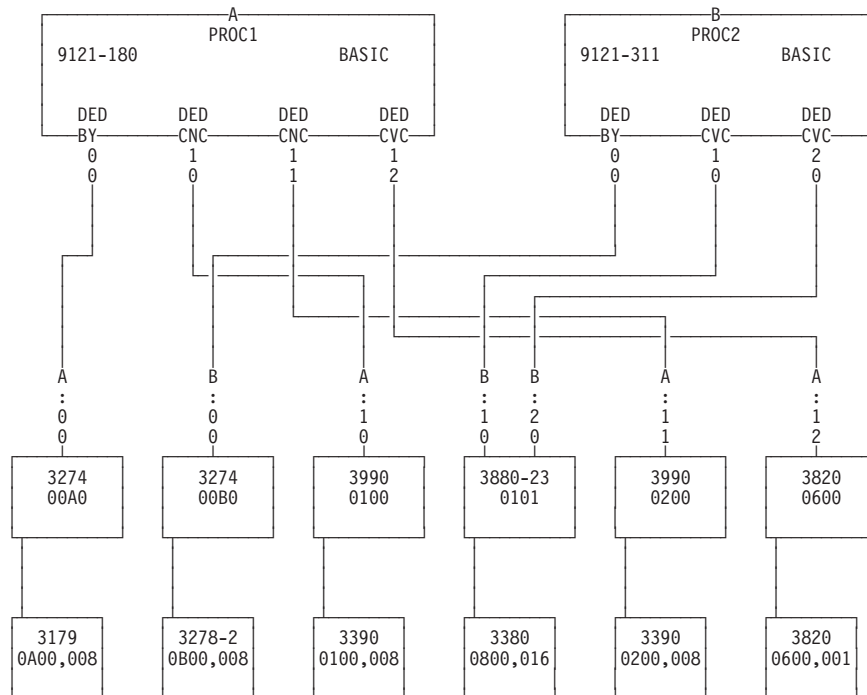


Figure 31. Target Configuration. (IODF03 with operating systems MVS1 and MVS2.)

## Procedure

### Define Your Configuration

==> Go to the HCD main panel.

1. Specify a new work IODF (IODF03) and select task 1. On the resulting Create Work I/O Definition File panel, specify Volume serial number, Space allocation, and whether you want Activity logging or not.

==> Go to the HCD main panel.

2. Specify IODF01.

==> Go to the Processor List panel.

3. **Repeat (copy)** **r** processor PROC1 from IODF01 to IODF03.

On the resulting Target IODF panel, specify the IODF you want to copy the processor configuration to (IODF03).

==> Go to the Operating System Configuration List panel.

4. **Repeat (copy)** **r** operating system MVS1 from IODF01 to IODF03.

On the resulting Target IODF panel, specify the IODF you want to copy the operating system configuration to (IODF03).

==> Go to the HCD main panel.

5. Specify IODF02.

==> Go to the Processor List panel.

6. **Repeat (copy)** **r** processor PROC2 from IODF02 to IODF03.

- On the resulting Target IODF panel, specify the IODF you want to copy the processor configuration to (IODF03).
- On the resulting Specify New CU Numbers panel, specify a new control unit number.

```

Specify New CU Numbers                               Row 1 of 1

The control units listed have already been defined with
different types in the target IODF. These control units
will be created with numbers not yet defined in the
target IODF.

Accept or revise the new numbers below and press ENTER.

CU   Type           New Number
0100 3880-23        0101
***** Bottom of data *****

Command ==> _____

```

**CU number must be unique in IODF**

Control unit numbers must be unique within one IODF. HCD checks this while copying the CU definitions to the target IODF. If HCD detects CU numbers that are already defined, you are prompted to specify a new CU number.

In our case CU 0100 is defined in both IODFs with different type, so HCD prompts you for a new control unit number.

If HCD detects other conflicts, for example duplicate device numbers, change your configuration accordingly. Then perform *Repeat (copy)* (**r**) again.

- ==> Go to the Operating System Configuration List panel.
7. *Repeat (copy)* (**r**) operating system MVS2 from IODF02 to IODF03.
- On the resulting Target IODF panel, specify the IODF you want to copy the operating system configuration to (IODF03).
  - On the resulting Repeat Operating System Configuration panel, specify as associated processor PROC2.

### Verify Your Configuration

- Select option 4 on the HCD main panel and create or view a graphical CU report of IODF03 to verify the changes made.
- On the Operating System Configuration List panel, you can *Work with attached devices* (**u**).

## Chapter 18. Merge IODFs (with ESCON Director)

Merge two separate configurations with a BASIC processor each, and with a partly shared device pool into one IODF.

The source IODFs may contain other definitions (like an additional processor) which are ignored during the merging process.

### Task

You want to merge two separate configurations with a BASIC processor each, and with a partly shared device pool into one IODF. The source IODFs may contain other definitions (like an additional processor) which are ignored during the merging process.

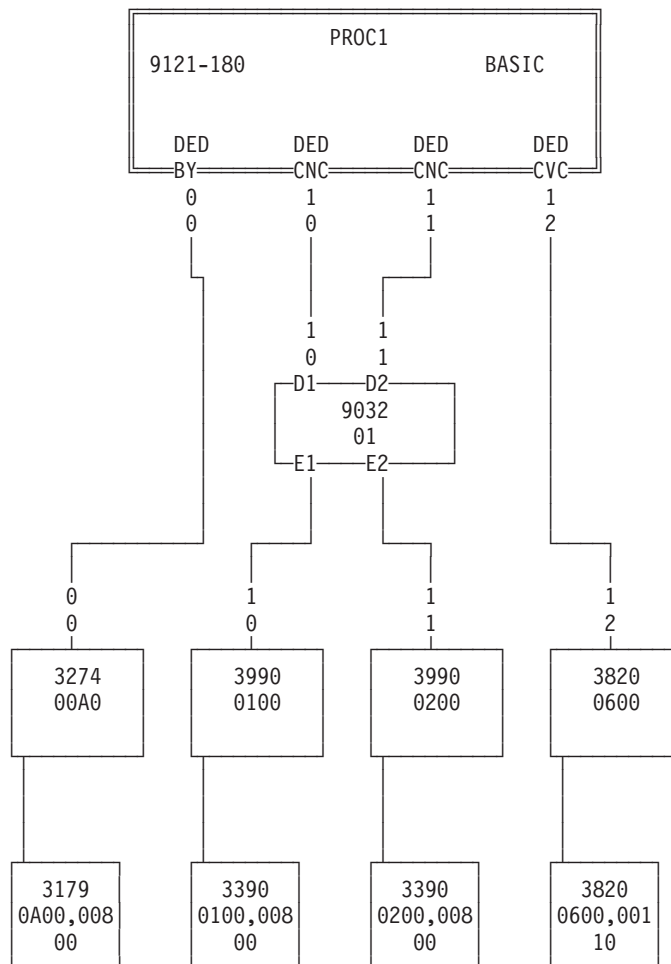


Figure 32. Source Configuration — IODF01 with operating system MVS1

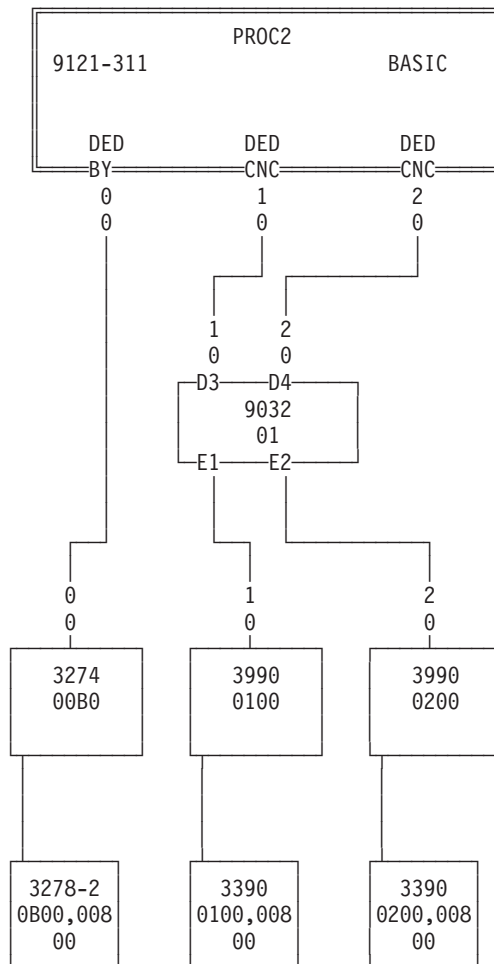


Figure 33. Source Configuration — IODF02 with operating system MVS2

**The source configuration contains**

- Two separate configurations with a BASIC processor each (PROC1, PROC2).
- One operating system in each processor (MVS1, MVS2).
- Objects that are shared between both processors therefore are defined with the same IDs and numbers:
  - A switch (01)
  - Two control units (0100, 0200)
  - The devices attached to these control units
- Other control units and devices defined with unique numbers.

You can accomplish the task by:

- Creating a new work IODF (IODF03) large enough to contain both source IODFs.
- Copying processor PROC1 from IODF01 into IODF03.
- Copying processor PROC2 from IODF02 into IODF03.
- Copying operating system MVS1 from IODF01 into IODF03.



- Copying operating system MVS2 from IODF02 into IODF03.

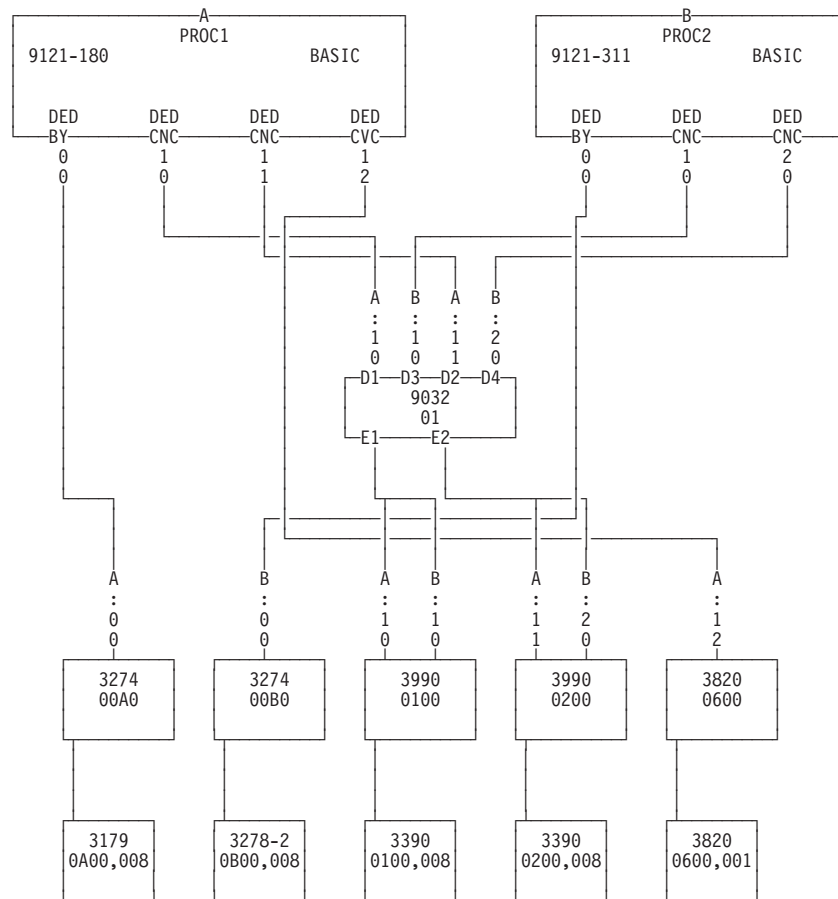


Figure 34. Target Configuration. (IODF03 with operating systems MVS1 and MVS2.)

## Procedure

### Define Your Configuration

==> Go to the HCD main panel.

1. Specify a new work IODF (IODF03) and select task 1. On the resulting Create Work I/O Definition File panel, specify Volume serial number, Space allocation and whether you want Activity logging or not.

==> Go to the HCD main panel.

2. Specify IODF01.

==> Go to the Processor List panel.

3. **Repeat (copy)** **r** processor PROC1 from IODF01 to IODF03.

On the resulting Target IODF panel, specify the IODF you want to copy the processor configuration to (IODF03).

Specify the processor ID and press Enter.

==> Go to the Operating System Configuration List panel.

4. **Repeat (copy)** **r** operating system MVS1 from IODF01 to IODF03.

On the resulting Target IODF panel, specify the IODF you want to copy the operating system configuration to (IODF03).

Specify the OS configuration ID and press Enter.

==> Go to the HCD main panel.

5. Specify IODF02.

==> Go to the Processor List panel.

6. **Repeat (copy)** **r** processor PROC2 from IODF02 to IODF03.

On the resulting Target IODF panel, specify the IODF you want to copy the processor configuration to (IODF03).

If HCD detects conflicts change your configuration and repeat step 6.

==> Go to the Operating System Configuration List panel.

#### Check before you copy

Before you copy the configuration belonging to PROC2 to IODF03, make sure that control unit and device numbers match. It is recommended that the same physical control unit or device has the same number in both configurations so that HCD is able to match them correctly.

Control unit numbers must be unique. That means, if the same control unit number is used in both source configurations the control units must be of the same type, and must have the same devices attached to. HCD checks this while copying the CU definitions to the target IODF. If HCD detects CU numbers that are already defined, you are prompted to specify a new CU number (see Chapter 17. Merge IODFs (with Separate Device Pool)).

Device numbers can be duplicated, that means, the same device number is used in both source configurations but the device is of a different type or is attached to another control unit.

Additionally, make sure that the switch connections are unique.

7. **Repeat (copy)** **r** operating system MVS2 from IODF02 to IODF03.

- On the resulting Identify Target IODF panel, specify the IODF you want to copy the operating system configuration to (IODF03).
- On the resulting Repeat Operating System Configuration panel, specify an associated processor PROC2.

#### Optional Definition

Optionally, define switch configurations (they define the port connectivity for all installed ports to any other port of the switch). Another possibility HCD offers you is to migrate existing switch configurations (for more details refer to *z/OS HCD User's Guide*).

A fully defined switch configuration enables HCD to check whether a certain data path is completely defined or not, thus enabling a more complete validation of the IODF at definition time.

### Verify Your Configuration

- Select option 4 on the HCD main panel and create or view a graphical CU report of IODF03 to verify the changes made.
- On the Operating System Configuration List panel you can select *Work with attached devices* (**U**).



---

## Chapter 19. Reconfigure Installation-Static Devices

Change the LIBRARY parameter for your tapes to YES. The tapes have been defined as installation-static, which means, that the device cannot be modified or deleted using dynamic I/O reconfiguration.

An installation-static device is a device whose device type supports dynamic I/O configuration, but which has been defined as DYNAMIC=NO in the HCD configuration.

---

### Task

You want to change the LIBRARY parameter for your tapes to YES. The tapes have been defined as installation-static, which means, that the device cannot be modified or deleted using dynamic I/O reconfiguration.

It is assumed that some of your programs do not support dynamic devices and are using old UCB services to access the device control information. That is the reason why the device has been defined as installation-static (DYNAMIC=NO), although its device type supports dynamic I/O configuration.

#### Production IODFs used

**IODF10**

Current configuration; tape devices (0200-021F) are defined as DYNAMIC=NO and LIBRARY=NO. The operating systems is IMS1.

**IODF1A**

Same as IODF10, except that the tape devices (0200-021F) are defined as DYNAMIC=YES.

**IODF20**

Target configuration; tape devices (0200-021F) are defined as DYNAMIC=NO and LIBRARY=YES.

You accomplish the task by:

- Changing the device from installation-static to dynamic in a temporary IODF (IODF1A). This is the only allowed change at this time.
- Changing the definition of the library parameter from NO to YES in IODF20.
- Activating IODF1A to make the device dynamic.
- Activating IODF20 to change the LIBRARY parameter to YES.

### Procedure

**Define Your Configuration**

==> Go to the HCD main panel.

1. Specify the current production IODF (IODF10).

==> Go to the Operating Systems Configuration List panel.

2. Change the DYNAMIC attribute for the tapes to YES:

- Perform *Work with attached devices* ( **u** ) on the operating systems (IMS1).
- On the resulting I/O Device List panel, perform *Attribute group change* ( **e** ) on the tapes (0200-021F).

HCD prompts you to specify the allocation values for a work IODF, because changes cannot be done in a production IODF.

- On the resulting Create Work I/O Definition File panel, change the default IODF name from IODF10.WORK to IODF1A.WORK. Accept or change the other values displayed.
- On the resulting Attribute Group Change panel, select Allow dynamic configuration.

When you return to the I/O Device List panel you see that the entry in the Dyn. column changed from N to Y.

==> Go to the HCD main panel.

3. Specify the current production IODF (IODF10).

==> Go to the I/O Device List panel.

4. Change the definition of the LIBRARY parameter for the tapes to YES:

- Select the first (0200) and the last (021F) device of the group using a left and a right parenthesis and select *OS Group change* ( **o** ).

HCD prompts you to specify the allocation values for a work IODF, because changes cannot be done in a production IODF.

- On the resulting Create Work I/O Definition File panel, change the default IODF name from IODF10.WORK to IODF20.Work. Accept or change the other values displayed.
- On the resulting Change Device Group / Operating Systems Configuration panel, perform *Select (connect/change)* ( **s** ) on the operating systems (IMS1), for which you want to change the devices.
- On the resulting Define Device Group Parameters / Features panel, change the LIBRARY parameter to Yes by typing over the No in the Values column for the tape.

==> Go to the HCD main panel.

5. Build production IODF (IODF1A).

- Specify IODF1A.WORK as IODF name and select *Activate or process configuration data*.
- On the resulting Activate or Process Configuration Data panel, select *Build production I/O definition file*.
- On the resulting Build Production I/O Definition File, specify IODF1A as production IODF name.

6. Repeat step 5 and build production IODF20 from the second work IODF (IODF20.WORK).

### Activate Your Configuration

1. Stop all programs that are not supporting dynamic devices (this is no HCD task).
2. Dynamically activate IODF1A. It is sufficient to request a software- only activation because the channel subsystem definitions have not been changed and therefore the processor tokens in IODF10 and IODF1A are identical.

3. Dynamically activate IODF20. It is sufficient to request a software-only activation because the channel subsystem definitions have not been changed and therefore the processor tokens in IODF10 and IODF20 are identical.
4. Start all programs that you stopped in step 1 on page 86.

**Clean-up**

You can now delete the two work IODFs (IODF1A.WORK and IODF.20.WORK) and the temporary production IODF (IODF1A).

**Prepare the Configuration for Next IPL**

Make sure that the new IODF (IODF20) is referred to in the LOADxx member and that the parameters for IODF20 are used at IPL time.





---

## Chapter 20. Allocate HCD Migration Data Sets

Define the name and size of HCD data sets that HCD allocates when performing an IOCP/MVSCP/HCPRIO migration.

---

### Task

Define the name and size of HCD data sets that HCD allocates when performing an IOCP/MVSCP/HCPRIO migration. HCD allocates the following output data sets:

#### **HCDPRINT**

Is used for the HCD migration log.

#### **HCDASMP**

Contains the assembler SYSPRINT data set, which contains the assembly listing (input statements with sequence numbers and messages).

#### **HCDUT1**

Is used by the assembler as a work data set.

#### **HCDUT2**

Is used as output data set for the modified input stream and by the assembler as SYSIN data set.

#### **HCDUT3**

Is used by the assembler as punch data set (SYSPUNCH). and by the loader as input data set.

HCD allows you to control the name (HCDPRINT and HCDASMP only) and size (all five data sets), as well as any other data set attribute by allocating the data sets prior to invoking the migration function.

### Procedure

The easiest way to accomplish the task is to setup a REXX procedure (like the one shown in Figure 35 on page 90) that allocates the appropriate data sets.

```

/*REXX                                                                    */
/*****                                                                    */
/*   Allocate a few work files used by HCD migration function             */
/*****                                                                    */
userid = SYSVAR("SYSUID")          /* Get user identifier          */
migr_id  ="HCDPRINT"                /* HCD migration log           */
list_id  ="HCDASMP"                 /* HCD assembly listing        */

migr_file = "'userid'.HCD.MESSAGES'"
list_file = "'userid'.HCD.LISTING'"

migr_options = "TR SPACE(1,10)  BLKSIZE(2926) LRECL(133) RECFM(FBA) "
list_options = "TR SPACE(15,150) BLKSIZE(1573) LRECL(121) RECFM(FBA) "

call hcd_alloc migr_id, migr_file, migr_options
call hcd_alloc list_id, list_file, list_options

exit rc
/*****                                                                    */
/* Subroutine : HCD_ALLOC                                                */
/*                                                                    */
/* This subroutine allocates the data set, specified by ddname,         */
/* data set name and allocation parameters.                             */
/*****                                                                    */
hcd_alloc: procedure
  parse upper arg file, name, options
  if SYSDSN(name) = "OK" then do
    "ALLOC F("file") DA("name") REUSE SHR"
  end;
  else do;
    "ALLOC F("file") DA("name") BUFNO(2) OUTPUT" options
  end;
  IF rc > 0 THEN
    say "HCD data set <"file"> ("name") could not be allocated !"
return

```

Figure 35. Example of REXX Procedure that Allocates Migration Data Sets

---

## Chapter 21. Migrate IOCP/MVSCP Data Sets to HCD

You want to migrate two IOCP/MVSCP data sets into the same IODF and define an operating system configuration.

You plan to use the same OS definitions for all MVS images. The OS configuration will know all devices in any MVS image. Especially, the esoteric will be a superset of the previously separate definitions.

The target operating system contains the console definition of all the images. All devices, which are not accessible by a partition, remain offline.

---

### Task

You want to migrate two IOCP/MVSCP data sets into the same IODF and define two processors and an operating system configuration.

You plan to use the same OS definitions for all MVS images. The OS configuration will know all devices in any MVS image. Especially, the esoteric will be a superset of the two IOCP definitions.

The target operating system contains the console definition of all the images. All devices, which are not accessible by a partition, remain offline.

#### The IOCP/MVSCP data sets contain

- Input data set 1 (see Figure 36 on page 92):
  - An LPAR configuration with two partitions.
  - A physical control unit with different control unit numbers for each partition. The related device definitions use the same device numbers.
- Input data set 2 (see Figure 37):
  - A BASIC configuration. The device pool is partly shared between the two IOCP data sets.

```

ID MSG1='3090-600J (LPAR) with PART1, PART2'
*
CHPID PATH=00,TYPE=BL,PART=PART1
CHPID PATH=10,TYPE=BL,PART=PART1
CHPID PATH=18,TYPE=BL,PART=PART2
CHPID PATH=40,TYPE=BL,PART=PART2
CHPID PATH=50,TYPE=BL,PART=PART1
CHPID PATH=58,TYPE=BL,PART=PART2
*
IOCONFIG ID=00
*
*** Definitions for PART1 *****
*** Terminals:
*
CNTLUNIT CUNUMBR=0A00,PATH=00,UNIT=3274,UNITADD=((00,16)),SHARED=N
IODEVICE ADDRESS=(A00,16),CUNUMBR=A00,UNIT=3270,MODEL=X,
FEATURE=(EBKY3277,KB78KEY,SELPEN,DOCHAR,AUDALRM,PTREAD) *
*** DASDs:
CNTLUNIT CUNUMBR=1600,PATH=(10,50),UNIT=3880,UNITADD=((00,32)),
PROTOCL=S4,SHARED=Y *
IODEVICE ADDRESS=(600,8),CUNUMBR=1600,UNIT=3380
*
*** Definitions for PART2 *****
*** Terminals:
*
CNTLUNIT CUNUMBR=0B00,PATH=40,UNIT=3274,UNITADD=((00,16)),SHARED=N
IODEVICE ADDRESS=(B00,16),CUNUMBR=B00,UNIT=3270,MODEL=X,
FEATURE=(EBKY3277,KB78KEY,SELPEN,DOCHAR,AUDALRM,PTREAD) *
*** DASDs:
CNTLUNIT CUNUMBR=2600,PATH=(18,58),UNIT=3880,UNITADD=((00,32)),
PROTOCL=S4,SHARED=Y *
IODEVICE ADDRESS=(600,8),CUNUMBR=2600,UNIT=3380
*
*** Esoteric and Console Definitions *****
*
UNITNAME NAME=DASD,VIO=YES,UNIT=((600,8))
UNITNAME NAME=POOL,UNIT=((600,8))
*
NIPCON DEVMUM=(A00,B00)

```

Figure 36. Input Data Set 1 for LPAR Processor PROC1

```

ID MSG1='3090-150J (BASIC)'
*
CHPID PATH=00,TYPE=BL
CHPID PATH=08,TYPE=BL
CHPID PATH=10,TYPE=BL
CHPID PATH=18,TYPE=BL
*
IOCONFIG ID=00
*
*** Terminals:
*
CNTLUNIT CUNUMBR=0C00,PATH=00,UNIT=3274,UNITADD=((00,16)),SHARED=N
IODEVICE ADDRESS=(C00,16),CUNUMBR=C00,UNIT=3270,MODEL=X,          *
          FEATURE=(EBKY3277,KB78KEY,SELPEN,DOCHAR,AUDALRM,PTREAD)
*** DASDs:
CNTLUNIT CUNUMBR=0600,PATH=(08,18),UNIT=3880,UNITADD=((00,32)),    *
          PROTOCL=S4,SHARED=Y
IODEVICE ADDRESS=(600,8),CUNUMBR=0600,UNIT=3380
*
*** Tapes:
*
CNTLUNIT CUNUMBR=0800,PATH=10,UNIT=3480,UNITADD=((00,16)),        *
          PROTOCL=S4,SHARED=N
IODEVICE ADDRESS=(800,4),CUNUMBR=0800,UNIT=3480
*
*** Esoteric and Console Definitions *****
*
UNITNAME NAME=DASD,VIO=YES,UNIT=((600,8))
UNITNAME NAME=TAPE,UNIT=((800,4))
UNITNAME NAME=POOL,UNIT=((600,8),(800,4))
*
NIPCON   DEVNUM=(C00)

```

Figure 37. Input Data Set 2 for BASIC Processor PROC2

You can accomplish the task by:

- Allocating the new IODF.
- Migrating input data sets 1 and 2 as IOCP data sets and defining the LPAR processor (PROC1) and BASIC processor (PROC2).
- Modifying the migrated input data sets 1 and 2.
- Migrating the modified input data sets 1 and 2 as MVSCP data sets and defining the OS configuration (MVSPROD).

## Procedure

### Define Your Configuration

==> Go to the HCD main panel.

1. Specify a new IODF name and select an action.

- On the resulting Create Work I/O Definition File panel, specify the allocation values.

==> Go to the HCD main panel.

2. Select the migration function to migrate IOCP/OS data.

- On the resulting Migrate Configuration Data panel, select *Migrate IOCP/OS data*.
- On the resulting Migrate IOCP / MVSCP / HCPRIO Data panel, specify:  
Processor ID: PROC1  
IOCP only input data set: *input data set 1*

Processing mode: 1 (Validate)

For IOCP migration it is recommended to select Validate as processing mode first.

Migrate IOCP / MVSCP / HCPRIO Data

Specify or revise the following values.

Processor ID . . . . . PROC1\_\_ +  
OS configuration ID . . . . . \_\_\_\_\_ +

Combined IOCP/MVSCP input data set . \_\_\_\_\_  
or  
IOCP only input data set . . . . . IOCP(DECK1) \_\_\_\_\_  
MVSCP only or HCPRIO input data set \_\_\_\_\_  
Associated with processor \_\_\_\_\_ +  
partition \_\_\_\_\_ +

Processing mode . . . . . 1 1. Validate  
2. Save

Incremental update . . . . . 2 1. Yes  
2. No

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

- HCD prompts you to add the processor and displays the Add Processor panel. Specify the values for the processor (PROC1).
- On the resulting Available Support Levels panel, select the appropriate support level for the processor.
- After inspecting the migration messages from the validation process, repeat the migration using 2 (Save) as processing mode.

**Ignore MVSCP-related warning messages**  
The esoteric and console definitions are MVSCP definitions and are ignored when migrating the input data set as IOCP only data set. HCD issues warning messages in this case. Ignore these MVSCP-related warning messages.

3. Repeat step 2 and migrate the IOCP/OS data using input data set 2 with:  
Processor ID: PROC2  
IOCP only input data set: *input data set 2*

In Validate mode, HCD will inform you when it tries to match control units and devices defined in the input data set with those already defined in the IODF. Check these messages and, if necessary, modify your input data set to ensure that control units and devices match with your real configuration. In this scenario the device numbers 0600,8 are defined three times, because they are attached to control units that have different numbers.

4. Use input data set 1 to define the operating system configuration:
  - Copy input data set 1.
  - Edit input data set 1 and remove duplicate device numbers (see Figure 38 on page 95). Device numbers must be unique when migrating OS data.

```

ID MSG1='3090-600J (LPAR) with PART1, PART2'
*
CHPID PATH=00,TYPE=BL,PART=PART1
CHPID PATH=10,TYPE=BL,PART=PART1
CHPID PATH=18,TYPE=BL,PART=PART2
CHPID PATH=40,TYPE=BL,PART=PART2
CHPID PATH=50,TYPE=BL,PART=PART1
CHPID PATH=58,TYPE=BL,PART=PART2
*
IOCONFIG ID=00
*
*** Definitions for PART1 *****
*** Terminals:
*
CNTLUNIT CUNUMBR=0A00,PATH=00,UNIT=3274,UNITADD=((00,16)),SHARED=N
IODEVICE ADDRESS=(A00,16),CUNUMBR=A00,UNIT=3270,MODEL=X,*
          FEATURE=(EBKY3277,KB78KEY,SELPEN,DOCHAR,AUDALRM,PTREAD)
*** DASDs:
CNTLUNIT CUNUMBR=1600,PATH=(10,50),UNIT=3880,UNITADD=((00,32)),*
          PROTOCL=S4,SHARED=Y
IODEVICE ADDRESS=(600,8),CUNUMBR=1600,UNIT=3380
*
*** Definitions for PART2 *****
*** Terminals:
*
CNTLUNIT CUNUMBR=0B00,PATH=40,UNIT=3274,UNITADD=((00,16)),SHARED=N
IODEVICE ADDRESS=(B00,16),CUNUMBR=B00,UNIT=3270,MODEL=X,*
          FEATURE=(EBKY3277,KB78KEY,SELPEN,DOCHAR,AUDALRM,PTREAD)
*** DASDs:
CNTLUNIT CUNUMBR=2600,PATH=(18,58),UNIT=3880,UNITADD=((00,32)),*
          PROTOCL=S4,SHARED=Y
*
* Duplicate device number removed for MVSCP migration <<<<<<<<<<<<<<<<<<<<<<
* IODEVICE ADDRESS=(600,8),CUNUMBR=2600,UNIT=3380
*
*** Esoteric and Console Definitions *****
*
UNITNAME NAME=DASD,VIO=YES,UNIT=((600,8))
UNITNAME NAME=POOL,UNIT=((600,8))
*
NIPCON DEVRUM=(A00,B00)

```

*Figure 38. Modified Input Data Set 1 for OS Migration. Duplicate IODEVICE statement has been removed.*

5. Repeat step 4 on page 94 with input data set 2 (see Figure 39 on page 96).  
The second input data set has to be migrated as *incremental update* into the same OS configuration, which means that you have to:
  - Remove duplicate device numbers (that is, numbers, which are defined more than once in the IOCP data set, or already defined to the OS in the IODF).
  - Ensure that each UNITNAME definition contains all device numbers as defined for that esoteric name in both input data sets. (An esoteric definition (UNITNAME) will replace the corresponding one in the first input data set).
  - Ensure that the NIPCON statement includes all consoles of both input data sets.

```

ID MSG1='3090-150J (BASIC) '
*
CHPID PATH=00,TYPE=BL
CHPID PATH=08,TYPE=BL
CHPID PATH=10,TYPE=BL
CHPID PATH=18,TYPE=BL
*
IOCONFIG ID=00
*
*** Terminals:
*
CNTLUNIT CUNUMBR=0C00,PATH=00,UNIT=3274,UNITADD=((00,16)),SHARED=N
IODEVICE ADDRESS=(C00,16),CUNUMBR=C00,UNIT=3270,MODEL=X,           *
            FEATURE=(EBKY3277,KB78KEY,SELPEN,DOCHAR,AUDALRM,PTREAD)
*
*** DASDs:
*
CNTLUNIT CUNUMBR=0600,PATH=(08,18),UNIT=3880,UNITADD=((00,32)),     *
            PROTOCL=S4,SHARED=Y
*
* Duplicate device number removed for MVSCP migration <<<<<<<<<<<<<<<<<<<<<<
* IODEVICE ADDRESS=(600,8),CUNUMBR=0600,UNIT=3380
*
*** Tapes:
*
CNTLUNIT CUNUMBR=0800,PATH=10,UNIT=3480,UNITADD=((00,16)),         *
            PROTOCL=S4,SHARED=N
IODEVICE ADDRESS=(800,4),CUNUMBR=0800,UNIT=3480
*
*** Esoteric and Console Definitions *****
*
* UNITNAME and NIPCON statement as superset of both decks when <<<<<<<<
* merging MVSCP decks into one operating system definition <<<<<<<<
*
UNITNAME NAME=DASD,VIO=YES,UNIT=((600,8))
UNITNAME NAME=TAPE,UNIT=((800,4))
UNITNAME NAME=POOL,UNIT=((600,8),(800,4))
*
NIPCON    DEVNUM=(A00,B00,C00)
*

```

Figure 39. Modified Input Data Set 2 for Incremental OS Migration. Duplicate IODEVICE statement has been removed and the NIPCON statement has been updated. The UNITNAME statements include all devices and do not have to be changed.

==> Go to the HCD main panel.

6. Select the migration function to migrate the OS data.

- On the resulting Migrate Configuration Data panel, select *Migrate IOCP/OS data*.
- On the resulting Migrate IOCP / MVSCP / HCPRIO Data panel, specify:

OS configuration:	MVSPROD
MVSCP only input data set:	<i>modified input data set 1</i>
Associated with processor:	PROC1
partition:	PART1
Processing mode:	2 (Save)
Incremental update:	2 (No)

- HCD prompts you to add the operating system and displays the Add Operating System Configuration panel. Specify the entries for MVSPROD.

7. Repeat step 6 and migrate the OS data using the second modified input data set with the following values (note that Incremental update must be Yes):



OS configuration:		MVSPROD
MVSCP only input data set:		<i>modified input data set 2</i>
Associated with processor:		PROC2
	partition:	leave blank for BASIC processor
Processing mode:		2 (Save)
Incremental update:		1 (Yes)

Migrate IOCP / MVSCP / HCPRIO Data

Specify or revise the following values.

Processor ID . . . . . \_\_\_\_\_ +  
OS configuration ID . . . . . MVSPROD\_ +

Combined IOCP/MVSCP input data set . \_\_\_\_\_  
or  
IOCP only input data set . . . . . \_\_\_\_\_  
MVSCP only or HCPRIO input data set IOCP(DECK2A) \_\_\_\_\_  
Associated with processor PROC2\_ +  
partition \_\_\_\_\_ +

Processing mode . . . . . 2 1. Validate  
2. Save

Incremental update . . . . . 1 1. Yes  
2. No

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

### Verify Your Configuration

Create or view a graphical CU configuration report to verify the migration changes. The report shown in Figure 40 on page 98 is displayed.

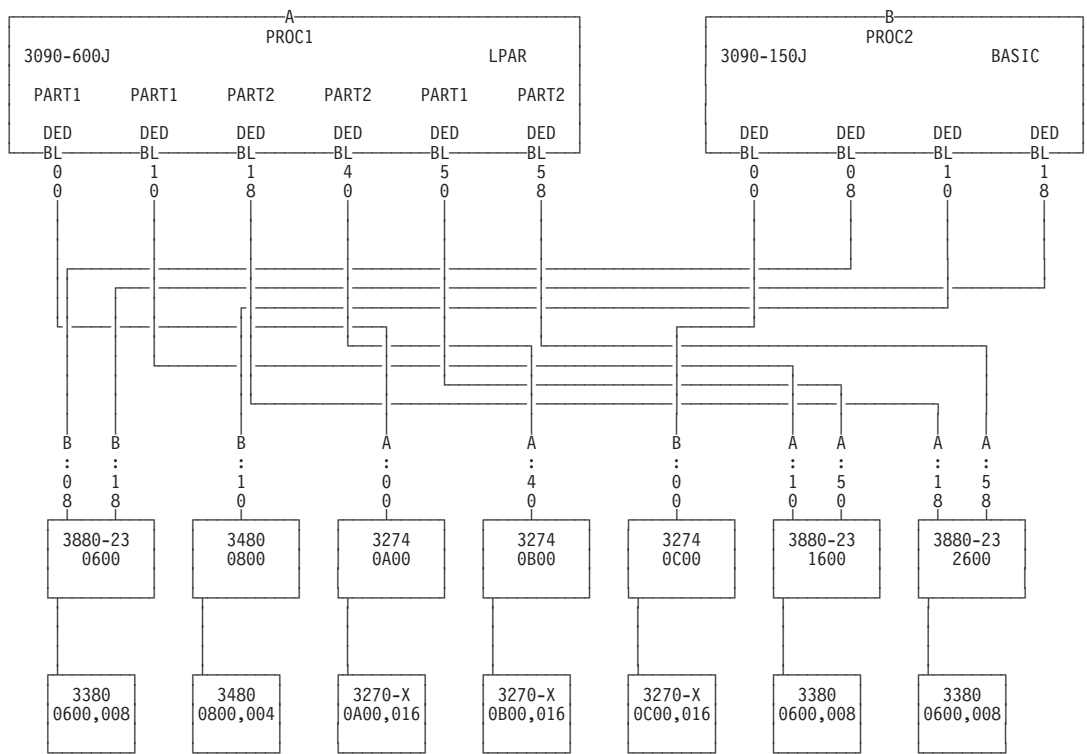


Figure 40. Target Configuration

---

## Chapter 22. Work with Configuration Packages

Define Configuration packages to create subset IODFs from the accessed IODF (master IODF) and transmit them for activation at the specified target systems.

---

### Task

You want to work with configuration packages and transmit them to target systems. A configuration package determines the content of a subset IODF and contains information about the target system. As a source configuration, the master IODF contains two processors, control units and devices defined via a switch.

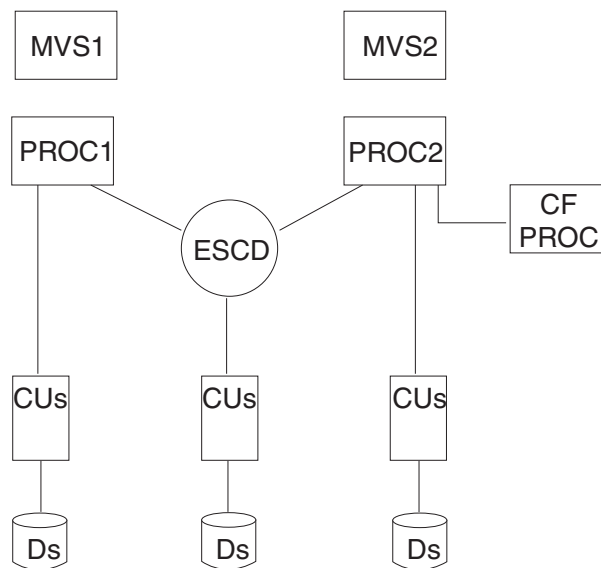


Figure 41. Source Configuration

#### The source configuration contains

- Two processors (PROC1, PROC2)
- One coupling facility processor with connection to PROC2
- Two Operating Systems (MVS1, MVS2)
- A switch (ESCD) connecting control units and attached devices
- CUs and devices connected directly to the processors

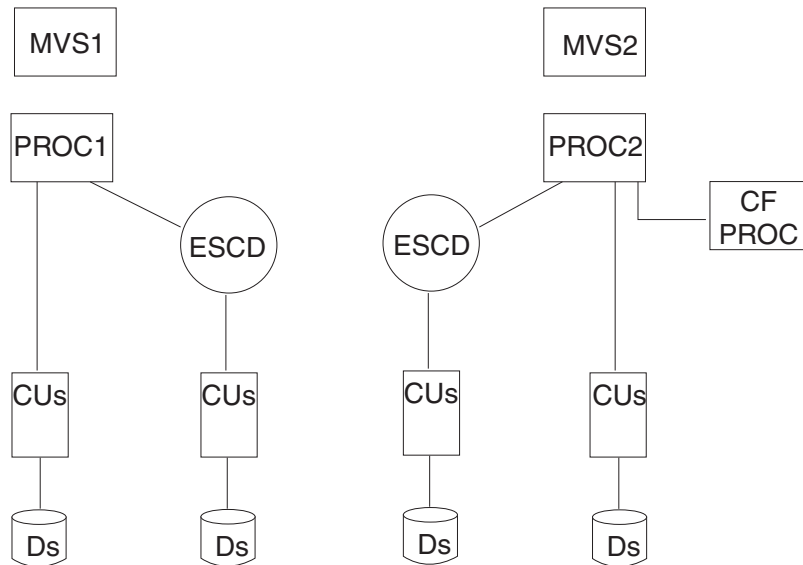


Figure 42. Target Configurations

**The target configurations contain**

PROC1, MVS1, the switch, and CUs/devices related to PROC1  
 PROC2, MVS2, the switch, and CUs/devices related to PROC2, as well as  
 the coupling facility processor connected to PROC2 with its coupling  
 facility partition

You may accomplish the task by:

- Defining configuration packages (PACKA, PACKB)
- Adding configuration package objects (PROC1 and MVS1 to configuration package PACKA; PROC2 and MVS2 to configuration package PACKB)
- Transmitting the configuration packages to the respective target systems

## Procedure

### Define Your Configuration

==> Go to the Configuration Package List panel

1. F11=Add configuration package.
  - On the resulting Add Configuration Package panel, specify:
    - Package name (PACKA)
    - User ID
    - Node ID
    - Operating system status (2) for unattended
    - Target IODF name

```

----- Add Configuration Package -----
Specify the following values.
Package name . . . . . PACKA_____
Package description . . Package for SYS1.IODF01_____

User ID . . . . . SYS1_____
Node ID . . . . . MVS01_____

Operating system status 2 1. Attended
                        2. Unattended (MVS only)

Target IODF name . . . . 'SYS1.IODF01'_____
Target volume . . . . . _____ (for unattended, if not SMS)

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

```

- ==> Go to the Configuration Package Object List panel.
- 2. F11=Add processor PROC1.
  - On the resulting Add Configuration Package Object panel specify:
    - Configuration type (PR)
    - Configuration ID (PROC1)
- 3. F11=Add Operating System MVS1.
  - On the resulting Add Configuration Package Object panel specify:
    - Configuration type (OS)
    - Configuration ID (MVS1)
- 4. Using the same steps create a second configuration package (PACKB) containing the configuration package objects PROC2 and MVS2.

```

Configuration Package List Row 1 of 2 More: >
Command ==> _____ Scroll ==> PAGE

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

IODF name . . . . : CKR.IODF03.WORK

Package -----Target----- ----Last sent---
/ Name   User   Node   Date   Time   Description
_ PACKA  SYS1   MVS01           Package for SYS1.IODF01
_ PACKB  SYS3   MVS02           Package for SYS3.IODF01
***** Bottom of data *****

```

The Configuration Package List is updated accordingly. Scrolling right will show the target IODF name.

- 5. Build a production IODF from the accessed IODF and then proceed to transmit the configuration packages.

- ==> Go to the Configuration Package List panel.
- 6. Select *Transmit configuration package*  for configuration package PACKA.
  - On the resulting Transmit Configuration Package panel review the data displayed. Descriptor field 1 is defaulted to the high level qualifier of the target IODF name in the package; descriptor field 2 is defaulted to the 2nd qualifier of the target IODF name in the package.

```

                                Transmit Configuration Package
Package name . . . . . : PACKA           Package for SYS1.IODF01
High level qualifier . . SYS1           Volume . . . . . _____ +
JCL member used . . . . . CBDJXMIT      Space . . . . . 153      (4K blocks)
Descriptor field 1 . . . SYS1
Descriptor field 2 . . . IODF01

Specify or revise the job control statements used to transmit the
package.

//XMIT      JOB (3243),'CKR',NOTIFY=CKR,CLASS=A,MSGCLASS=H,REGION=0M
//*
//*
//*
//*
//*

```

- Change the JOB statements as appropriate. Once changed, the statements are retained across sessions.
- Because Unattended was selected the Specify Target IODF and User Password panel is displayed. Enter the target IODF, the password, and the replace option.

Because the target IODF is distributed for activation at the specified system you must use a production IODF name which is valid for dynamic activation. The default is the target IODF name specified in the configuration package. Be sure not to overwrite the active IODF on the target system and specify an IODF name different from the name of the active IODF.

On the resulting Define JCL for IODF Import panel specify or revise the job control statements for importing the IODF on an MVS system.

7. Perform the *Transmit configuration package* action for configuration package PACKB.

The Configuration Package List panel is updated with the last sent date and time of the packages.

```

                                Configuration Package List  Row 1 of 2 More:  >
Command ==> _____ Scroll ==> PAGE

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

IODF name . . . . . : CKR.IODF03.MASTER.PROD

Package  -----Target----- ----Last sent---
/ Name   User   Node   Date   Time   Description
_ PACKA  SYS1    MVSKV01  1997-10-22  18:04  Package for SYS1.IODF01
_ PACKB  SYS3    MVSKV02  1997-10-22  17:32  package for SYS3.IODF01
***** Bottom of data *****

```

8. Receive the IODF at the target system if the transfer was performed in attended mode.
9. Activate the configuration on the target system (see Chapter 24. Activate a Configuration Dynamically).

---

## Chapter 23. Coexistence of HCD 4.3 and HCD 5.n / OS/390 HCD / z/OS HCD

Upgrade the system in several steps to a sysplex consisting of the 9021-962 and an S/390 microprocessor complex with 9672 processors and 9674 coupling facility processors. The 9021-942 will be phased out later.

---

### Task

You want to upgrade your configuration in several steps to a sysplex consisting of the 9021-962 and an S/390 microprocessor complex with 9672 processors and 9674 coupling facility processors. The 9021-942 will be phased out later.

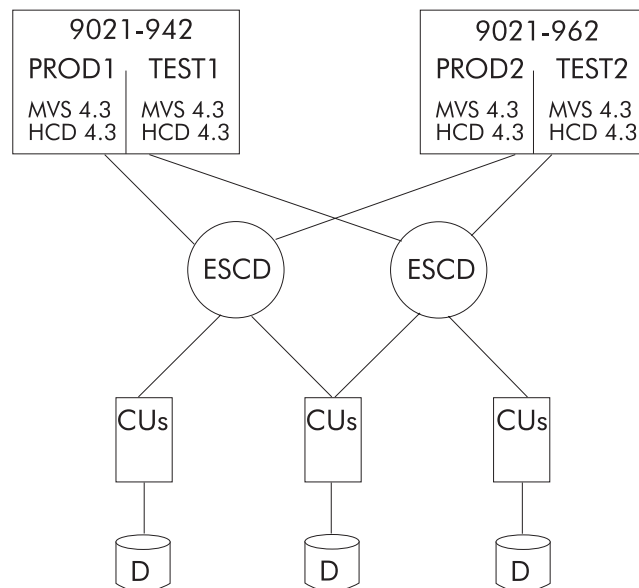


Figure 43. Source Configuration

#### The source configuration contains

Two processors (9021-942, 9021-962) running MVS/ESA SP 4.3.

Each of these processors has a production (PROD1, PROD2) and a test partition (TEST1, TEST2).

The 4.3 production IODF contains the configuration definitions for both processors and is shared among all partitions enabling them for dynamic I/O reconfiguration.

You can accomplish the task by:

- Installing MVS/ESA SP 5.n, OS/390, or z/OS<sup>2</sup> in the test partition of both processors.

---

2. References to MVS/ESA SP 5.n also apply to OS/390 and z/OS.

**Note:** MVS/ESA SP 5.n can be MVS/ESA SP 5.1 or 5.2.

- Installing the HCD Usability Feature (which is on HCD 5.1 level) on MVS/ESA SP 4.3.
- Upgrading the HCD 4.3 IODF to an HCD 5.n IODF.
- Defining the S/390 microprocessor cluster configuration (9672-E08).
- Upgrading the 9021-962 processor and connecting it to the coupling facility.

## Procedure

### Upgrade Your Configuration

1. Install MVS/ESA SP 5.n in partition TEST1 of processor 9021-942 and in partition TEST2 of processor 9021-962.

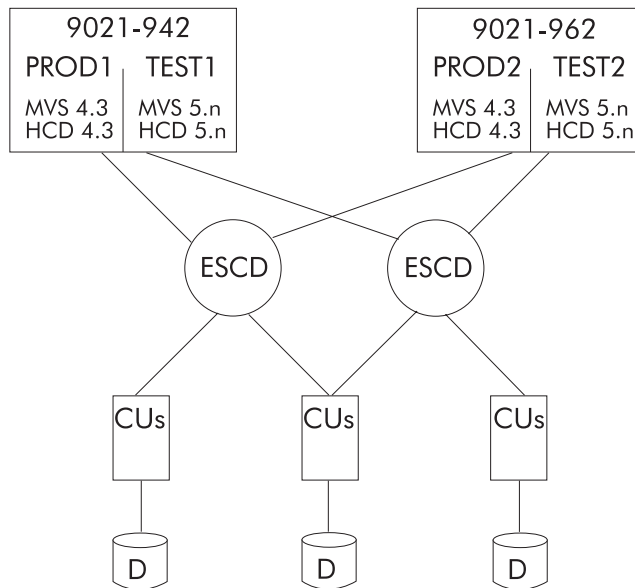


Figure 44. Configuration With Upgraded Test Partition. MVS 5.n can be both 5.1 or 5.2.

#### 4.3 IODF usage

The existing HCD 4.3 production IODF is used to IPL the MVS 4.3 and 5.n systems.

Dynamic I/O reconfiguration is possible from all partitions.

The IODF can be maintained from PROD1 or PROD2 using the HCD 4.3 dialog.

Using the HCD 5.n dialog, you can perform several actions on the 4.3 IODF, such as view configuration, activate configuration, or compare IODFs. When you try to change the IODF, HCD asks you to upgrade it.

None of the partitions may have devices defined with a number greater than 0FFF.

2. Install the HCD Usability Feature on MVS/ESA SP 4.3 in partition PROD2 of processor 9021-962.



Refer to the *HCD Usability Feature: Program Directory* and the *HCD Usability Feature: User's Guide*, SC33-6490, for information on how to install the feature.

3. Upgrade the HCD 4.3 IODF to an HCD 5.n IODF using the option **Upgrade into New IODF**. This allows you to keep a copy of the HCD 4.3 IODF.

#### 5.n IODF usage

All partitions can be IPLed with the HCD 5.n IODF.

For dynamic reconfiguration on MVS/ESA SP 4.3, you either have to use the HCD Usability Feature dialog or the ACTIVATE operator command. (PTF UW90022 is required to activate an HCD 5.n IODF on a MVS/ESA SP 4.3 system using the ACTIVATE operator command).

You can maintain the IODF from PROD2, TEST1, and TEST2 using the HCD 5.n dialog.

You cannot view, activate, or modify the IODF using the HCD 4.3 dialog.

Hardware reconfiguration is not allowed on an MVS/ESA SP 4.3 system if coupling facility channels are defined for the processor to be activated, for instance, if CFS channels are defined for one of the 9021 processors (see step 5 on page 106).

Devices with device numbers greater 0FFF cannot be accessed from an MVS/ESA SP 4.3 system. They are ignored during IPL and dynamic I/O reconfiguration. (A toleration PTF on your MVS/ESA SP 4.3 is required).

4. Define the S/390 microprocessor cluster (9672-E08) configuration with the coupling facility (CF1) using the upgraded 5.n IODF.
  - Define a 9672-E08 processor (TESTX1).
  - Attach the control units.
  - Repeat (copy) the processor (TESTX2).
  - Define a 9674-C01 coupling facility (CF1).
  - Connect the coupling facility (refer to “Chapter 15. Add Coupling Facility” on page 67 for details).

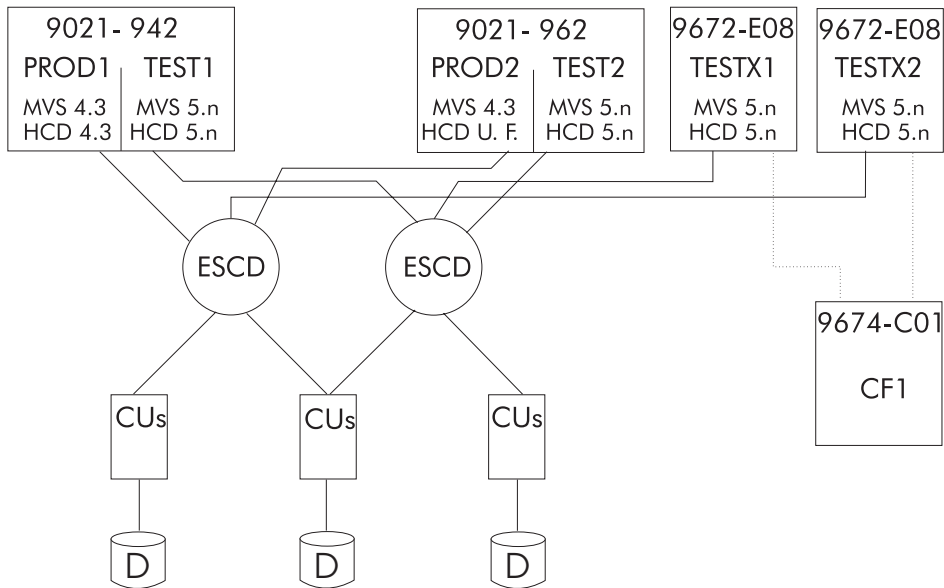


Figure 45. S/390 Microprocessor Cluster with Coupling Facility Defined. HCD U.F. is the HCD Usability Feature on MVS/ESA SP 4.3.

5. Upgrade the 9021-962 processor definitions and establish the connection with the coupling facility (CF1).
  - Change your hardware (the 9021-962) and then change your software processor definition (and the EC level, if necessary).
  - Define the CFS channels for all partitions.
  - Connect the CFS channels to the coupling facility.

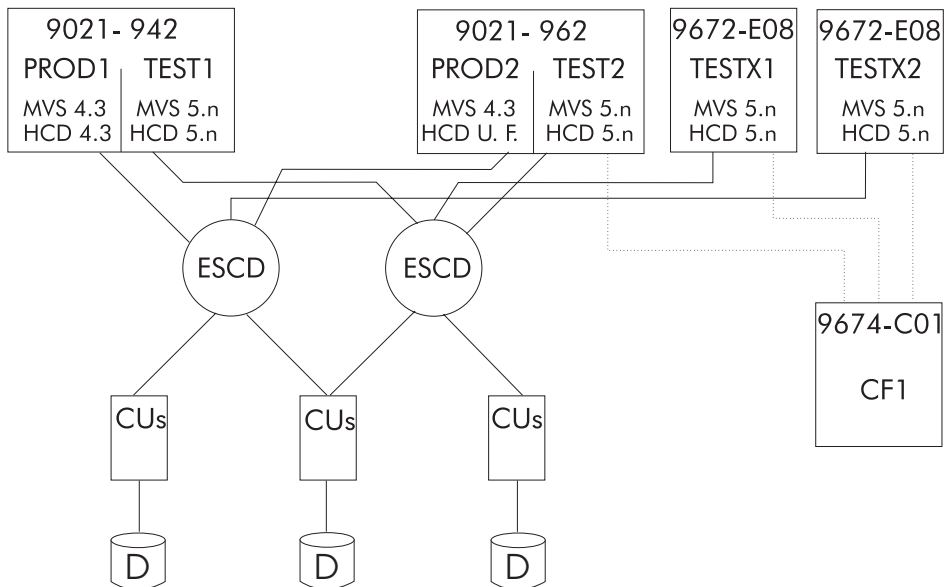


Figure 46. Connection Between Coupling Facility and 9021-962 Established

### Activate Your Configuration

1. Build production IODF.
2. Perform dynamic I/O reconfiguration on 9021-962:

- Perform a software-only activation on PROD2. Because CFS channels are defined for that processor, the dynamic reconfiguration is restricted on the MVS/ESA SP 4.3 system (PROD2) to software-only activations.
  - Perform a software and hardware activation on TEST2. If a hardware change is required, perform the dynamic reconfiguration on the MVS/ESA SP 5.n system (TEST2).
3. Build IOCDS for the 9021-962 (for use in step 6).
  4. Build IOCDS for the new processors in the S/390 microprocessor complex. Perform this action on any processor belonging to the complex. Due to the remote download function it is not necessary that the target processor is IPLed.
  5. Perform POR with the new IOCDS on the S/390 microprocessor cluster.
  6. IPL the MVS systems using a shared IODF.

After having activated your configuration, you may start production with the S/390 microprocessor complex on HCD 5.n level.

### Follow-on Definitions

You may phase out the 9021-942, install other 9672 processors, and upgrade PROD2 to MVS/ESA SP 5.n:

- Delete processor 9021-942. Check for unconnected control units and devices (by generating a graphical CU report.)
- If you add new processors, define them by repeating (copying) one of the existing processors.
- Install MVS/ESA SP 5.n on PROD2.

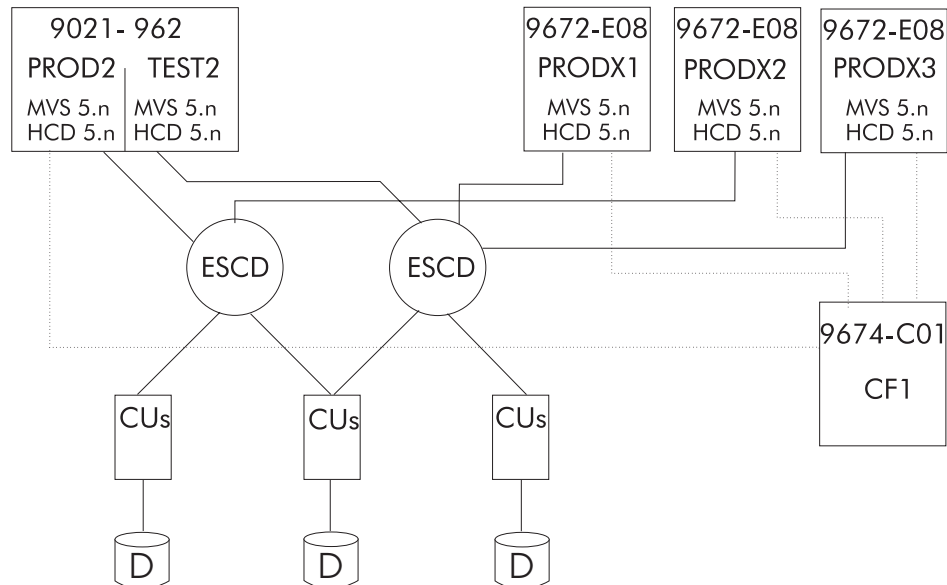


Figure 47. Configuration with Follow-on Definitions. Processor 9021-942 has been removed, PRODX3 has been added, and PROD2 has been upgraded.



---

## Chapter 24. Activate a Configuration Dynamically

Activate a configuration dynamically, including a switch configuration.

---

### Task

You want to activate a configuration dynamically.

#### Before you start

Check that the prerequisites for a dynamic I/O reconfiguration are met. You can do this by going to the Activate or Process Configuration Data panel and viewing the active configuration.

You may accomplish the task by:

- Setting the devices and channel paths off-line.
- Physically changing the cabling and replacing the devices.
- Performing dynamic I/O reconfiguration.
- Vary the devices and channel paths on-line

### Procedure

1. Build production IODF (if not previously done).
2. Vary off the devices which will be modified or deleted (in all partitions).
3. Configure the channel paths to be modified off-line (in all partitions).
4. You may perform an activation in TEST mode to ensure that there are no conditions that might inhibit a dynamic I/O reconfiguration.

To be able to obtain information about the channel paths which have been deleted, modified, or added the option `SHOW_IO_CHANGES = YES` must be included in your HCD profile.

5. Change the hardware and the cabling.
6. Perform a software-only activation in all partitions except one. Perform a software and hardware activation in the remaining partition.

For the software and hardware activation specify YES for Allow hardware delete on the Activate New Hardware and Software Configuration panel.

If you carry out the activation using the *Activate configuration sysplex-wide* action, select all systems concerned. HCD automatically performs the activations in the correct sequence.

7. Configure the channel paths on-line.
8. Vary on the new devices.

### **Activate New Switch Configuration**

If the new configuration contains a changed switch configuration (for example, a dedicated connection is defined between a CVC channel and a parallel channel), perform the following addition steps:

- Vary the ESCON Director device online. Thus, System Automation for OS/390 I/O Operations is able to address the ESCON Director.
- Activate the new switch configuration.

If more than one switch is affected, perform a multiple switch activation. In that case specify only the switch configuration ID, and no switch ID on the Activate Switch Configuration Panel. HCD then allows you to select all involved switches.

For more details on dynamic reconfiguration refer to *z/OS HCD Planning*.

---

## Chapter 25. Perform IPL with a Shared IODF

Change the configuration for one or more partitions.

If you IPL your system using a shared IODF, you can change the IODF without the need to update the LOADxx members of the SYS1.IPLPARM.

---

### Task

You want to change the configuration for one or more partitions. If you IPL your system using a shared IODF, you can change the IODF without the need to update the LOADxx members of the SYS1.IPLPARM.

**The source configuration contains**

One LPAR processor with three partitions (LP1, LP2, LP3)  
Three separately defined operating systems (MVS1, MVS2, MVS3)  
The IODF contains the I/O configuration data of all operating systems that run in the above mentioned partitions.

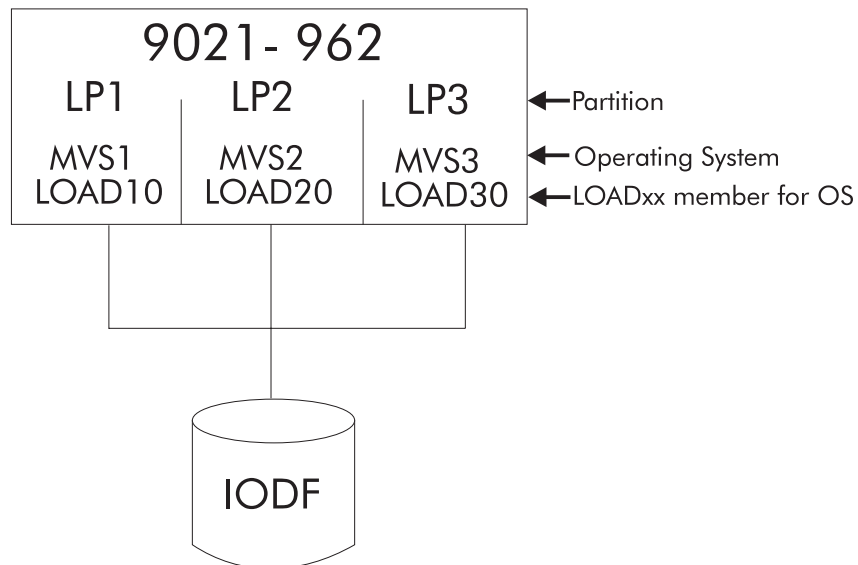


Figure 48. Source Configuration

#### **SYSn.IPLPARM data set**

The IODF volume contains a SYSn.IPLPARM data set with the LOADxx members that define the IPL characteristics to be used. Each operating system uses its own LOADxx member pointing to the IODF. The LOADxx member contains the name of the operating system, as well as the EDT ID. In our case the LOADxx members for the operating systems are:

LOAD10 for MVS1  
LOAD20 for MVS2  
LOAD30 for MVS3

## **Procedure**

### **Define Your Configuration**

The following setup allows you to change the configuration (IODF) for one or more partitions without the need to update the LOADxx members of the SYSn.IPLPARM data sets, that are used by the various operating systems, to reflect the new IODF.

#### **MVS/ESA SP 5.1, MVS/ESA SP 5.2, OS/390, or z/OS HCD**

To IPL the latest version of the LOADxx members, specify asterisks '\*\*' for the IODF suffix in the IDOF statement in the LOADxx member for IPL. MVS uses the IODF you are currently running with.

#### **MVS/ESA SP 4.3**

The specification with asterisks '\*\*' was introduced with MVS/ESA SP 5.1. With MVS/ESA SP 4.3 do not specify the IODF suffix. This means that at IPL time the first IODF found on the volume with a matching processor token and a matching operating system configuration ID is used.

### **Backup Considerations**

Each operating system has a backup LOADxx member pointing to SYSn.IODFAA (except SYS1.). These backup LOADxx members are:

LOAD1S for operating system MVS1  
LOAD2S for operating system MVS2  
LOAD3S for operating system MVS3

SYSn.IODFAA will always contain the previous configuration (the one you intend to replace). So in case of an outage that requires an IPL, you only need to specify the "xS" LOAD PARM suffix to recover the original environment.

### **Activate Your Configuration**

1. Copy current production IODF to SYSn.IODFAA for backup purposes.
2. Make your configuration changes and build a new production IODF. Use the next free IODF suffix (for example, if the current IODF is SYSn.IODF12, use SYSn.IODF13). This helps you keep track how often you have changed your configuration.

**Note:** If you reach suffix FF, start again with suffix 01.



3. Activate the new configuration (target configuration). In our case it would be SYSn.IODF13.
4. Delete the old IODF, in our case SYSn.IODF12.

At this time the backup IODF (the previous configuration) is stored in SYSn.IODFAA and can be referred to via LOADxS from IPL. Alternatively, SYSn.IODFAA can be used as the *target* IODF and the newly activated IODF as the source for a dynamic activation (restore the old configuration, if necessary).



---

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6. Access the licensed book by selecting the appropriate element.

---

## LookAt System for Online Message Lookup

LookAt is an online facility that allows you to look up explanations for z/OS messages and system abends.

Using LookAt to find information is faster than a conventional search because LookAt goes directly to the explanation.

LookAt can be accessed from the Internet or from a TSO command line.

You can use LookAt on the Internet at:

<http://www.ibm.com/servers/eserver/zseries/zos/bkserv/lookat/lookat.html>

To use LookAt as a TSO command, LookAt must be installed on your host system. You can obtain the LookAt code for TSO from the LookAt Web site by clicking on the **News and Help** link or from the *z/OS Collection*.

To find a message explanation from a TSO command line, simply enter: **lookat message-id** as in the following:

```
lookat cbda100i
```

This results in direct access to the message explanation for message CBDA100I.

To find a message explanation from the LookAt Web site, simply enter the message ID. You can select the release if needed.

**Note:** Some messages have information in more than one book. For such messages, LookAt prompts you to choose which book to open.



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## Readers' Comments — We'd Like to Hear from You

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Hardware Configuration Definition  
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