

IBM Education Assistance for z/OS V2R1

Item: I/O Autoconfiguration (zDAC) Stage 3
Element/Component: HCD



Agenda

- Trademarks
- Presentation Objectives
- Overview
- Usage & Invocation
- Interactions & Dependencies
- Appendix



Trademarks

- See url <http://www.ibm.com/legal/copytrade.shtml> for a list of trademarks.



Presentation Objectives

- The purpose of this presentation is to explain the enhancements to the I/O autoconfiguration (zDAC) function with z/OS V2R1:
 - Support of FICON directly attached controllers
 - User-defined control unit / device numbers
 - User control of switches and channel paths used for discovery and definition
 - Discovery by controller serial number
 - Bypass unavailable / incapable systems during discovery
 - Change of policy without performing new fabric discovery
 - Save discovery results



Overview – Support of direct-attached (non-switched) controllers

- Problem Statement / Need Addressed
 - I/O autoconfiguration discovery only works for storage controllers that are attached via a FICON switch.
- Solution
 - FICON point-to-point (dedicated) attached channel paths are included in the discovery process.
- Benefit / Value
 - The limitation of the FICON discovery process to switch-attached controllers is removed.



Overview – User assigned CU/device numbers

- Problem Statement / Need Addressed
 - The device numbering policy options will not work well for each customer.
- Solution
 - Allow the customer to manually enter control unit and device numbers for proposed definitions of discovered items.
- Benefit / Value
 - Customers get more control on control unit and device numbering to follow their installation conventions.



Overview – Channel path / switch inclusion / exclusion lists

- Problem Statement / Need Addressed
 - The zDAC function may select a channel path or switch for discovery and auto-definition which should not be used for various reasons (performance, isolation, etc.).
- Solution
 - The I/O autoconfiguration policy is extended by channel path / switch inclusion / exclusion lists which determine which CHPID / switch is used for discovery and auto-definition.
- Benefit / Value
 - Customers get control over the channel paths and switches that are used for discovery and definition.



Overview – Discovery by serial number

- Problem Statement / Need Addressed
 - Discovery can be restricted only to a specific controller if it has already a control unit defined.
- Solution
 - Allow discovery for a controller with a specific serial number.
- Benefit / Value
 - Discovery can be limited to a specific new controller.



Overview – Policy change between controller discoveries

- Problem Statement / Need Addressed
 - Autoconfiguration policy options for definition can not be changed between two subsequent controller discoveries. A new fabric discovery is required.
- Solution
 - Allow change of autoconfiguration policies between two subsequent controller discoveries and definitions.
- Benefit / Value
 - Unnecessary processing time for a new fabric discovery is saved.



Overview – Tolerate incapable systems

- Problem Statement / Need Addressed
 - If the LPAR group used for discovery contains a system that is not available or not capable for zDAC, the discovery process is ended.
- Solution
 - Allow the user to specify that incapable systems are ignored during the discovery process.
- Benefit / Value
 - Unnecessary processing time for a new fabric discovery is saved.



Overview – Save discovery and auto-definition results

- Problem Statement / Need Addressed
 - In HCD, there is no report available for the discovery and definition results of zDAC.
- Solution
 - Provide the SAVE list command on the controller and defined control units and devices panels.
- Benefit / Value
 - The discovery and definition results can be saved in a data set.



Usage & Invocation – New processing options (HCD)

Session B - [32 x 80]

File Edit View Communication Actions Window Help

z/OS V2.1 HCD

Discovery and Autoconfiguration Options

Specify autoconfiguration options. Then, press Enter to start the discovery process.

Autoconfiguration is based on 2 1. Active IODF
2. Currently accessed IODF

Scope of discovery 4 1. New controllers only
2. All controllers
3. Controller containing CU
4. Controller with S/N CW14*

Show proposed definitions . . 1 1. Yes 2. No
Force full mode discovery . . 2 1. Yes 2. No
Tolerate incapable systems 2 1. Yes 2. No

Target IODF name . . . 'BBE1.IODF74.AUTO.WORK'

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

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

MA b 14/071

Connected to remote server/host tn3270.de.ibm.com using lu/pool FU0U7789 and port 23

•Limit discovery to a controller with a specific serial number (generic specification is supported).

•Skip systems that are not able to perform discovery.



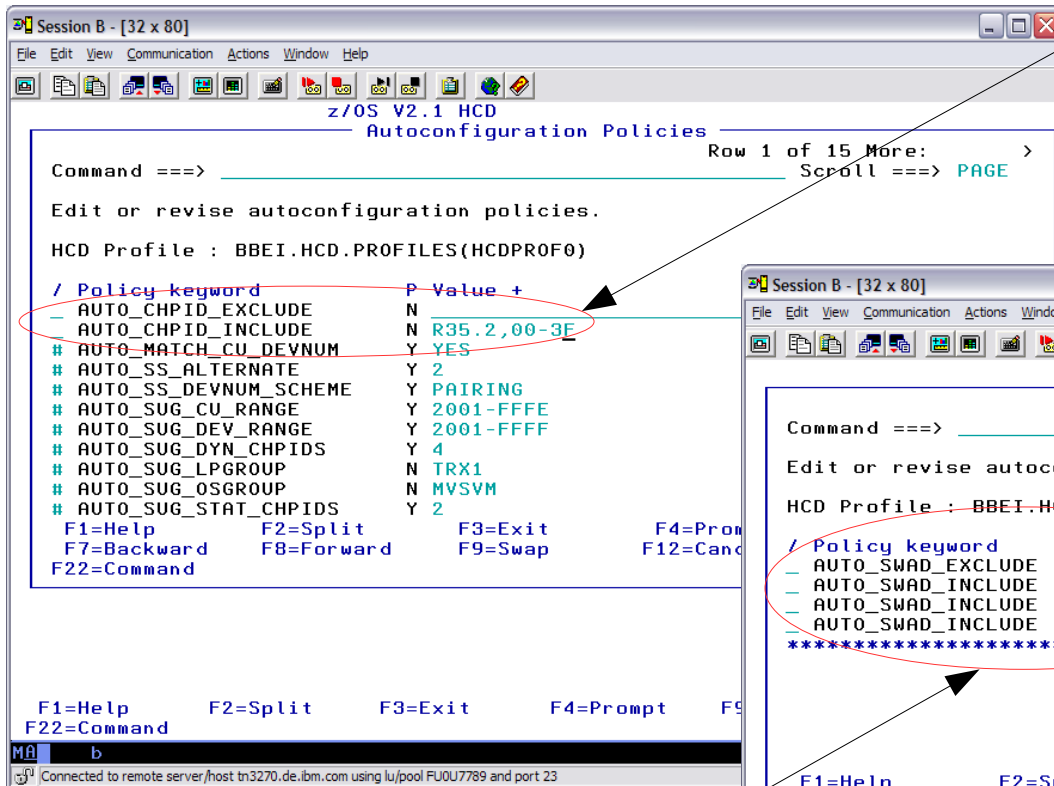
Usage & Invocation – New processing options (HCM)

- Limit discovery to a controller with a specific serial number (generic specification is supported).

- Skip systems that are not able to perform discovery.



Usage & Invocation – New policy options



```

z/OS V2.1 HCD
Autoconfiguration Policies
Row 1 of 15 More: >
Command ==>
Edit or revise autoconfiguration policies.
HCD Profile : BBEI.HCD.PROFILES(HCDPROF0)

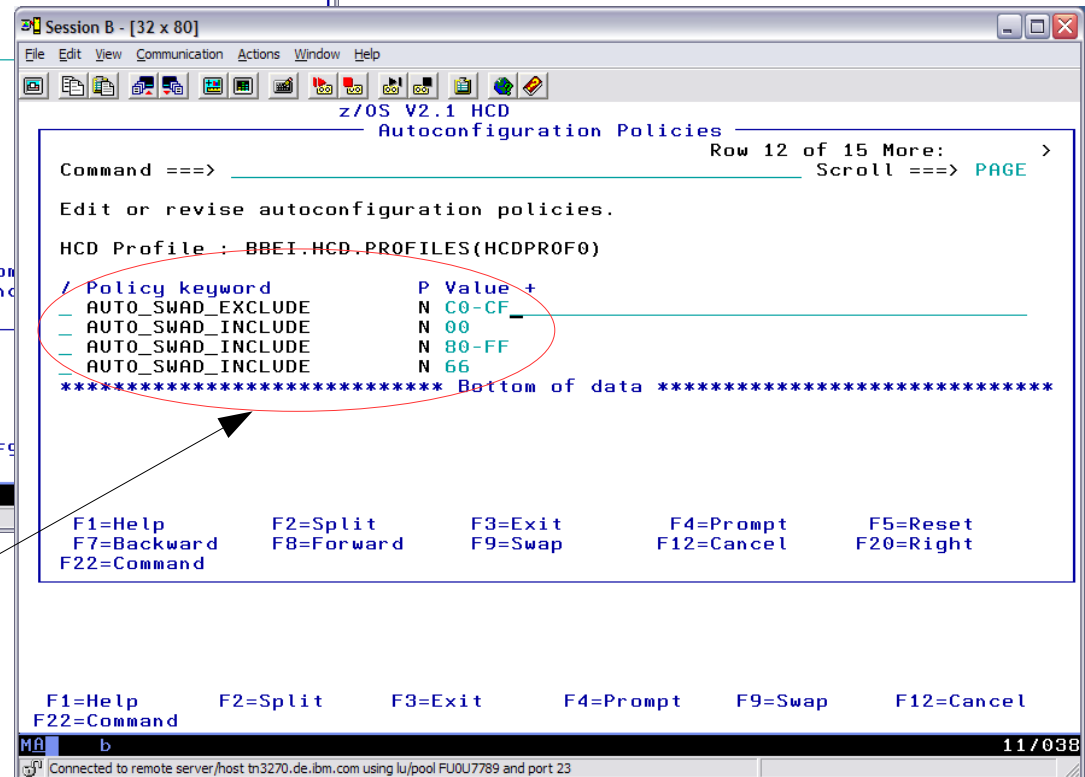
/ Policy keyword      P Value +
- AUTO_CHPID_EXCLUDE  N
- AUTO_CHPID_INCLUDE  N R35.2,00-3F
# AUTO_MATCH_CU_DEVNUM Y YES
# AUTO_SS_ALTERNATE   Y 2
# AUTO_SS_DEVNUM_SCHEME Y PAIRING
# AUTO_SUG_CU_RANGE   Y 2001-FFFF
# AUTO_SUG_DEV_RANGE  Y 2001-FFFF
# AUTO_SUG_DYN_CHPIDS Y 4
# AUTO_SUG_LPGROUP    N TRX1
# AUTO_SUG_OSGROUP    N MVSVM
# AUTO_SUG_STAT_CHPIDS Y 2

F1=Help    F2=Split    F3=Exit    F4=Prom
F7=Backward F8=Forward  F9=Swap    F12=Canc
F22=Command

F1=Help    F2=Split    F3=Exit    F4=Prompt    F5
F22=Command
MA b
Connected to remote server/host tn3270.de.ibm.com using lu/pool FU0U7789 and port 23
  
```

CHPID exclusion / inclusion lists:

- Keywords `AUTO_CHPID_EXCLUDE`, `AUTO_CHPID_INCLUDE` can be duplicated.
- CHPID numbers are specified either as single values or as ranges (qualified by processor name and CSS ID).



```

z/OS V2.1 HCD
Autoconfiguration Policies
Row 12 of 15 More: >
Command ==>
Edit or revise autoconfiguration policies.
HCD Profile : BBEI.HCD.PROFILES(HCDPROF0)

/ Policy keyword      P Value +
- AUTO_SWAD_EXCLUDE   N C0-CF
- AUTO_SWAD_INCLUDE   N 00
- AUTO_SWAD_INCLUDE   N 80-FF
- AUTO_SWAD_INCLUDE   N 66
***** Bottom of data *****

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

F1=Help    F2=Split    F3=Exit    F4=Prompt    F9=Swap    F12=Cancel
F22=Command
MA b
Connected to remote server/host tn3270.de.ibm.com using lu/pool FU0U7789 and port 23
11/038
  
```

Switch exclusion / inclusion lists:

- Keywords `AUTO_SWAD_EXCLUDE`, `AUTO_SWAD_INCLUDE` can be duplicated.
- Switch addresses are specified as single value or as a range.

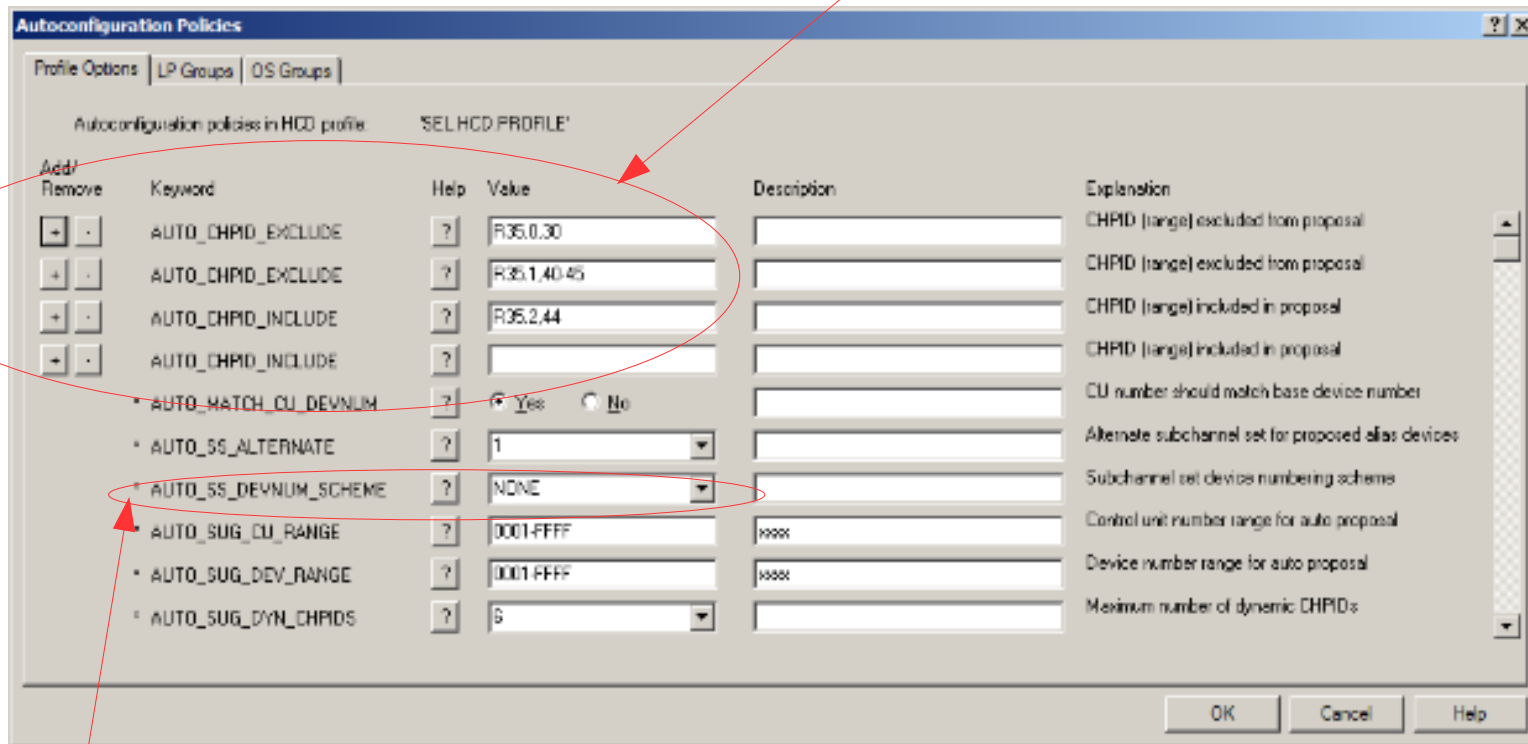
Usage & Invocation – New policy options (HCM)

Switch exclusion / inclusion lists:

- Keywords `AUTO_SWAD_EXCLUDE`, `AUTO_SWAD_INCLUDE` can be duplicated.
- Switch addresses are specified as single value or as a range.

CHPID exclusion / inclusion lists:

- Keywords `AUTO_CHPID_EXCLUDE`, `AUTO_CHPID_INCLUDE` can be duplicated.
- CHPID numbers are specified either as single values or as ranges (qualified by processor name and CSS ID).



Keyword	Help	Value	Description	Explanation
AUTO_CHPID_EXCLUDE	?	R35,0,30		CHPID (range) excluded from proposal
AUTO_CHPID_EXCLUDE	?	R35,1,40,45		CHPID (range) excluded from proposal
AUTO_CHPID_INCLUDE	?	R35,2,44		CHPID (range) included in proposal
AUTO_CHPID_INCLUDE	?			CHPID (range) included in proposal
AUTO_MATCH_CU_DEVNUM	?	<input checked="" type="radio"/> Yes <input type="radio"/> No		CU number should match base device number
AUTO_SS_ALTERNATE	?	1		Alternate subchannel set for proposed alias devices
AUTO_SS_DEVNUM_SCHEME	?	NONE		Subchannel set device numbering scheme
AUTO_SUG_CU_RANGE	?	0001-FFFF	xxxx	Control unit number range for auto proposal
AUTO_SUG_DEV_RANGE	?	0001-FFFF	xxxx	Device number range for auto proposal
AUTO_SUG_DYN_CHPIDS	?	6		Maximum number of dynamic CHPIDs

`AUTO_SS_DEVNUM_SCHEME=NONE` allows user-assigned CU/device numbers



Usage & Invocation – User-assigned control unit / device numbers

Session B - [32 x 80]
z/OS V2.1 HCD
Autoconfiguration Policies
Row 1 of 1
Command ==>
Edit or revise autoconfiguration policies.
HCD Profile : BBEI.HCD.PROFILES(HCDPROF0)

Policy keyword	P	Value +
AUTO_CHPID_EXCLUDE	N	
AUTO_CHPID_INCLUDE	N	R35.2,00-3F
AUTO_MATCH_CU_DEVNUM	Y	YES
AUTO_SS_ALTERNATE	Y	2
AUTO_SS_DEVNUM_SCHEME	Y	NONE
AUTO_SUG_CU_RANGE	Y	2001-FFFF
AUTO_SUG_DEV_RANGE	Y	2001-FFFF
AUTO_SUG_DYN_CHPIDS	Y	4
AUTO_SUG_LPGRP	N	TRX1
AUTO_SUG_OSGROUP	N	MVSVM
AUTO_SUG_STAT_CHPIDS	Y	2

F1=Help F2=Split F3=Exit F4=Prompt

Session B - [32 x 80]
z/OS V2.1 HCD
Discovery and Autoconfiguration Options
Policy Backup Query Help
Proposed Control Unit List
Row 1 of 10
Command ==> Scroll ==> PAGE

Control unit type . . : 2107-932 Serial number : CW931
Proposed switch.ports : 11.13 10.17 11.17 10.13 11.2E 10.32 11.32 10.2E

To accept the proposed values, press Enter. To modify them, edit the fields, or select one or more control units to change, exclude or include the corresponding definitions, then press Enter.

CU	CU number+	# of devices	LPAR Access+	New	Description	I
/ ADD	3701	80	TRX1	Yes		Y
01	0000	80	TRX1	Yes		Y
02	0000	44	TRX1	Yes		Y
03	0000	36	TRX1	Yes		Y
04	0000	36	TRX1	Yes		Y
05	0000	37	TRX1	Yes		Y

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

Assign numbers for control units or devices. Then hit Enter. F12=Cancel

Session B - [32 x 80]
Proposed Control Unit / Device List
Control unit type . . : 2107-932 Serial number : CW931
To accept the proposed values, press Enter. To modify them, edit the fields, or select one or more device ranges to change, exclude or in the corresponding definitions, then press Enter.

Device	S	CU	UA	OS	Num	Range	Access+	N	Description
0000,48	3390B	0	3701	00-2F	MVSVM	Y			
0000,32	3390A	0	3701	60-7F	MVSVM	Y			

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

Assign numbers for control units or devices. Then hit Enter. ckward

F1=H F8=Forward F9=Swap F12=Cancel F22=Command 02/015

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1. Specify policy option AUTO_SS_DEVNUM_SCHEME=NONE.
2. The Proposed Control Unit List panel shows the control unit numbers as 0000's which can be over-typed with user-chosen numbers.
3. The Proposed Control Unit / Device List panel shows the starting numbers of the device ranges as 0000's which can be over-typed with user-chosen device numbers.

Usage & Invocation – User-assigned control unit / device numbers(HCM)

Autoconfiguration - Map Proposed Devices

Controller Type: 2107 - 931
Controller Serial Number: L2531

Include	Device Number	#	UA Range	Device Type	SCH5	CU Number	OS Access	New	Description
<input checked="" type="checkbox"/>	0500	48	00-2F	3390B	0	0500	ALL	Yes	
<input checked="" type="checkbox"/>	0540	128	40-8F	3390A	1	0500	ALL	Yes	
<input checked="" type="checkbox"/>	0800	256	00-FF	3390B	0	0800	ALL	Yes	
<input type="checkbox"/>		256	00-FF	3390B					
<input checked="" type="checkbox"/>	0E00	188	00-BB	3390B					
<input checked="" type="checkbox"/>	D800	32	00-1F	3390B					
<input type="checkbox"/>	D900	32	00-1F	3390B					
<input checked="" type="checkbox"/>	D980	32	00-1F	3390B					

Autoconfiguration - Map Proposed Control Units

Controller Type: 2107 - 931
Controller Serial Number: L2531

Connected Switch Ports: 14.9A 14.1A 14.9A 14.0A

Include	CUADD	Control Unit Number	Control Unit Type	Serial Number	# Devices	LPAR Access	New	Description
<input checked="" type="checkbox"/>	00	0500	2107	L2531	176	ALL	Yes	
<input checked="" type="checkbox"/>	01	0800	2107	L2531	256	ALL	Yes	
<input checked="" type="checkbox"/>	02	0C00	2107	L2531	256	ALL	Yes	
<input type="checkbox"/>	04		2107	L2531	28	ALL	Yes	
<input checked="" type="checkbox"/>	08	0E00	2107	L2531	188	ALL	Yes	
<input type="checkbox"/>	0A		2107	L2531	128	ALL	Yes	
<input checked="" type="checkbox"/>	20	D800	2107		32	ALL	No	LSS2107 D800 CU20 SEB...
<input type="checkbox"/>	21	D880	2107		32	ALL	No	LSS2107 D800 CU21 SEB...

< Back Next > Cancel Help



Interactions & Dependencies

- Software Dependencies
 - None.
- Hardware Dependencies
 - IBM zEnterprise 196 or IBM zEnterprise 114 server, or later
- Exploiters
 - Systems programmers responsible for I/O definition



Appendix

- Hardware Configuration Definition User's Guide, SC34-2669
- Hardware Configuration Manager User's Guide, SC3-2664
- Hardware Configuration Definition Messages, SC34-2668
- Hardware Configuration Definition Planning, GA32-0907
- z/OS Migration, GA32-0889

- HCD/HCM Homepage:
 - <http://www.ibm.com/systems/z/os/zos/features/hcm/>

- HCD/HCM Contact:
 - IBMHCD@de.ibm.com

