

IBM Education Assistance for z/OS V2R1

Item: HMC wide Activate

Element/Component: HCD



Agenda

- Trademarks
- Presentation Objectives
- Overview
- Usage & Invocation
- Interactions & Dependencies
- Migration & Coexistence Considerations
- Installation
- Appendix



Trademarks

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



Presentation Objectives

- The purpose of this session is to present an overview of the HMC wide Activate function of HCD:
 - Scope
 - Setup
 - User Interface
 - Functionality



Overview

Problem Statement / Need Addressed

- With increasing numbers of LPARs, there is also an increasing need to manage dynamic I/O changes efficiently across servers / systems using a single IODF.
- Reduce effort to distribute IODF, reduce number of system logons

▪ Solution

- Provide a single point of management control for dynamic activates across all servers / LPARs that are controlled by the same HMC via
 - Central deployment of target IODF
 - Remote activate from a single managing system

▪ Benefit / Value

- Cost of I/O management will be significantly reduced.

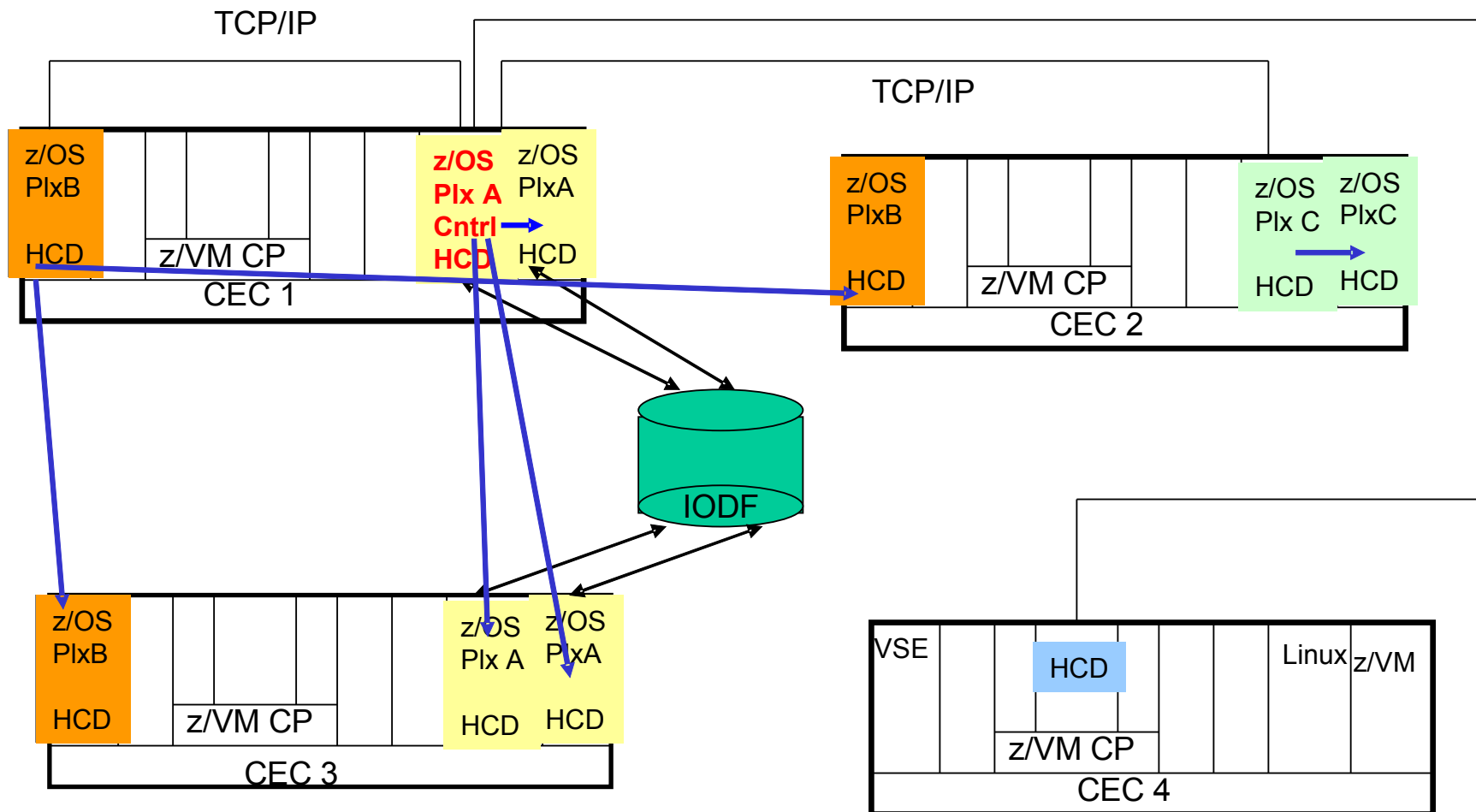


Overview

- A managing HCD system allows the customer to define, distribute and activate the I/O configuration for all other systems of those servers that are controlled by the same HMC.
 - HCD lists the reachable systems together with their activation states.
 - HCD communicates via TCP/IP with the HCD instances of the target systems to deploy the IODF and perform the dynamic activates including required operations. Resulting messages are returned.
 - The connection data is provided in a connection table. Its data set name is specified in the HCD profile.
 - Pass-ticket support is available.
- The function is integrated in the existing dialog to perform the IOCDS and IPL parameter management in an HMC controlled CPC cluster.
- The solution is common for both z/OS and z/VM systems.



Overview



Usage & Invocation

- A connection table describes the target systems / sysplexes that are to be managed.
 - An entry contains the IP address / port number and login data. (A password is not required if pass-tickets are used.)
 - For each remote sysplex, a connection to at least one system is required.
 - If a server without a z/OS but a z/VM system is to be managed, an entry for the z/VM system is needed.
 - Example:

* NETWORK NAME	IMAGE	IP ADDR	PORT	USERID	PASSWORD
*-----	-----	-----	-----	-----	-----
IBM390PS,R35	,TRX2	,BOETRX2	,51107	,BBEI	,xxxxxxxx
IBM390PS,DAN2	,SYSA	,BOESYSA	,51107	,BBEI	,xxxxxxxx
IBM390PS,ECL2	,SYSD	,BOESYSD	,51107	,BBEI	
IBM390PS,ECL2	,SCLM1	,BOESCLM	,51107	,BBEI	
IBM390PS,POL1	,HCDVM	,BOEHCDVM	,51107	,BEICHTER	,xxxxxxxx

- On each remote system the HCD dispatcher has to be active.



Usage & Invocation

Session C - [32 x 80]

File Edit View Communication Actions Window Help

z/OS V2.1 HCD

Command ==>

Hardware Configuration

Select one of the following.

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

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

I/O definition file . . . 'SYS4.IODF00'

Session C - [32 x 80]

File Edit View Communication Actions Window Help

z/OS V2.1 HCD

Activate or Process Configuration Data

Select one of the following tasks.

1. Build production I/O definition file
2. Build IOCDs
3. Build IOCP input data set
4. Create JES3 initialization
5. View active configuration
6. Activate or verify configuration dynamically
7. Activate configuration system
8. *Activate switch configuration
9. *Save switch configuration
10. Build I/O configuration data
11. Build and manage System z cluster IOCDs, IPL attributes and dynamic I/O changes
12. Build validated work I/O definition file

* = requires TSA I/O Operations

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

Session C - [32 x 80]

File Edit View Communication Actions Window Help

Goto Query Help

System z Cluster List

Row 1 of 18

Command ==> Scroll ==> PAGE

Select one or more CPCs, then press Enter.

-----CPC-----			
/ SNA Address	Type	Model	IODF Processor ID
IBM390PS.DAN2	2094	S28	DAN2
IBM390PS.ECL2	2097	E40	ECL2
IBM390PS.G14	2084	B16	G14
IBM390PS.G15	2084	D32	G15
IBM390PS.H05	2097	E26	H05
IBM390PS.H37	2097	E26	H37
IBM390PS.H42	2097	E26	H42
IBM390PS.P0L1	2096	S07	P0L1
IBM390PS.P0ZGMR04	2818	M10	ZGMR04
IBM390PS.P0000H27	2097	E56	H27
IBM390PS.RAP	2066	004	RAP
IBM390PS.RAP2	2066	004	RAP2
IBM390PS.R17	2817	M32	R17
IBM390PS.R35	2817	M49	R35
IBM390PS.R37	2817	M32	R37
IBM390PS.T29	2094	S18	T29
IBM390PS.T53	2094	S18	T53
IBM390PS.T63	2094	S38	T63

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

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

23/004

1. Access target production IODF

2. Select option 2.11

3. Select action 'v': View CPC image list



Usage & Invocation

```

Session C - [32 x 80]
File Edit View Communication Actions Window Help
Goto Query Help

CPC Image List Row 49 of 60 More: >
Command ===> Scroll ==> PAGE

Select one or more systems of the CPC, then press Enter. To refresh the
Activate/Verify Status, press Enter without selections made.

Processor ID : R35 SNA Address : IBM390PS.R35
HSA Token : R35 11-11-15 07:33:54 SYS4 IODF71

-- Partition --- Co Sysplex ----- System ----- Activation -----
/ Name ID Stat St Name Name Type Level HW SW Status
# R35LP49 34 0001
# R35LP50 35 0001 LINUX 3.0.8
# R35LP51 36 0001 LINUX 3.0.8
# R35LP52 37 0002
# R35LP53 38 0002
# R35LP54 39 0002
# R35LP56 3B 0002
- R35LP58 3D 0001 BOER3558 VM 6.1
- R35LP59 3E 0001 BOER3559 VM 5.4
- R35LP60 3F 0001 BOER3560 VM 6.1
- TRX1 2C 0001 Y TRX1PLEX TRX1 MVS 2.1 Y Y
- TRX2 3C 0001 S TRX1PLEX TRX2 MVS 1.13 Y Y
***** Bottom of data *****

F1=Help F2=Split F3=Exit F4=Prompt F7=Backward F8=Forward
F9=Swap F10=Actions F12=Cancel F13=Instruct F14=SortName F15=SortStat
F16=SortSplx F20=Right F22=Command

MA 04/015
Connected to remote server/host tn3270.de.ibm.com using lu/pool FU0U6836 and port 23

```

Connected systems show

- active IODF
- active OS configuration
- active EDT

Connected systems (connection status 'Y' or 'S') show their activation status:

HW=Y: hardware changes are possible
 HW=N: hardware changes are not possible
 SW=Y|S: software changes are possible
 SW=N: software changes are not possible

```

[32 x 80]
Communication Actions Window Help
Query Help

CPC Image List Row 49 of 60 More: <
Command ===> Scroll ==> PAGE

Select one or more systems of the CPC, then press Enter. To refresh the
Activate/Verify Status, press Enter without selections made.

Processor ID : R35 SNA Address : IBM390PS.R35
HSA Token : R35 11-11-15 07:33:54 SYS4 IODF71

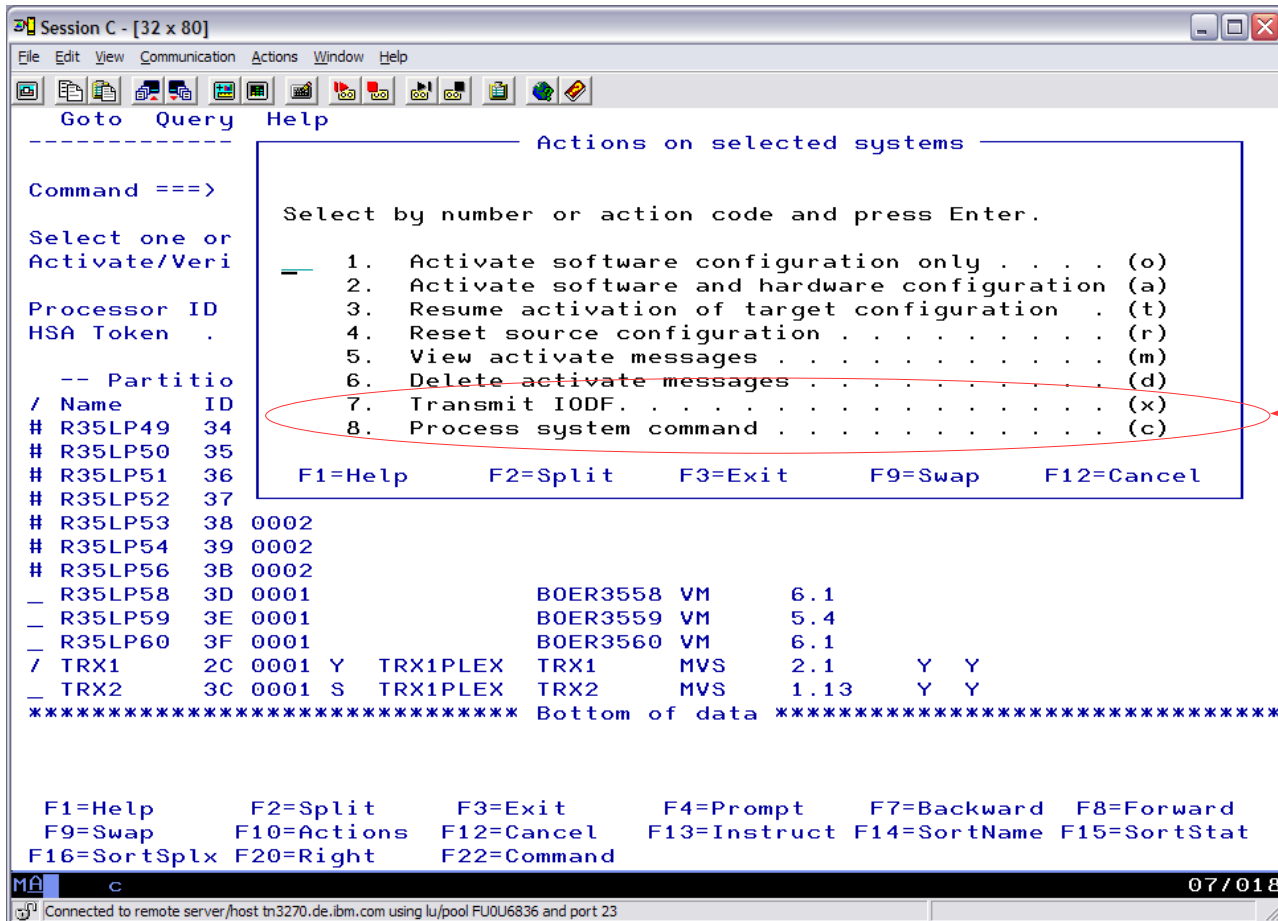
Partition Active Conf EDT
e IODF ID ID
LP49
LP50
LP51
LP52
LP53
LP54
LP56
- R35LP58
- R35LP59
- R35LP60
- TRX1 SYS1.IODF01 MVSVM 00
- TRX2 SYS1.IODF01 MVSVM 00
***** Bottom of data *****

F1=Help F2=Split F3=Exit F7=Backward F8=Forward F9=Swap
F10=Actions F12=Cancel F19=Left F22=Command

MA c 14/002
Connected to remote server/host tn3270.de.ibm.com using lu/pool FU0U6836 and port 23

```

Usage & Invocation



```

Session C - [32 x 80]
File Edit View Communication Actions Window Help

Goto Query Help

-----
Command ==>
Select one or
Activate/Veri

Processor ID
HSA Token .

-- Partitio
/ Name ID
# R35LP49 34
# R35LP50 35
# R35LP51 36
# R35LP52 37
# R35LP53 38 0002
# R35LP54 39 0002
# R35LP56 3B 0002
- R35LP58 3D 0001
- R35LP59 3E 0001
- R35LP60 3F 0001
/ TRX1 2C 0001 Y TRX1PLEX TRX1 MVS 2.1 Y Y
- TRX2 3C 0001 S TRX1PLEX TRX2 MVS 1.13 Y Y
***** Bottom of data *****

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

1. Activate software configuration only . . . . . (o)
2. Activate software and hardware configuration (a)
3. Resume activation of target configuration . (t)
4. Reset source configuration . . . . . (r)
5. View activate messages . . . . . (m)
6. Delete activate messages . . . . . (d)
7. Transmit IODF. . . . . (x)
8. Process system command . . . . . (c)

F1=Help F2=Split F3=Exit F4=Prompt F7=Backward F8=Forward
F9=Swap F10=Actions F12=Cancel F13=Instruct F14=SortName F15=SortStat
F16=SortSplx F20=Right F22=Command

MA C 07/018
Connected to remote server/host tn3270.de.ibm.com using lu/pool FU0U6836 and port 23

```

Activation actions are similar to the actions on the sysplex-wide activate panel.

In addition, an explicit Transmit IODF action is added which brings up the Export IODF dialog and system commands can be remotely processed.



Usage & Invocation

```

Session C - [32 x 80]
File Edit View Communication Actions Window Help
Goto Query Help

Activate Software Configuration Only

Command ==> _____ Row 1 of 1
Specify or revise the values for activation, then press Enter.
Scroll ==> PAGE

IODF to be activated: 'SYS4.IODF00'

System  Processor Partition Config. EDT Valid. Test Active
Name    ID +      Name    ID +   ID + HW Ch. Only IODF
TRX2    R35      TRX2    MVSVM 00   Yes  Yes  SYS1.IODF01
***** Bottom of data *****

Session C - [32 x 80]
File Edit View Communication Actions Window Help
Goto Query Help

Activate Hardware and Software Configuration

Command ==> _____ Row 1 of 1 More:
Specify or revise the values for activation, then press Enter.
Scroll ==> PAGE

IODF to be activated: 'SYS4.IODF00'

System  Processor Partition Config. EDT -FORCE Option- Switch Test
Name    ID +      Name    ID +   ID + DEVICE CANDID. IOCDS + Only
TRX1    R35      TRX1    MVSVM 00   No   No   ___   Yes
***** Bottom of data *****

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

- R35LP58 3D 0001      B0ER3558 VM      6.1
- R35LP59 3E 0001      B0ER3559 VM      5.4
- R35LP60 3F 0001      B0ER3560 VM      6.1
a TRX1    2C 0001 Y TRX1PLEX TRX1    MVS      2.1    Y Y
F1=Help      F2=Split      F3=Exit      F4=Prompt      F7=Backward F8=Forward
F9=Swap      F10=Actions  F12=Cancel   F13=Instruct F14=SortName F15=SortStat
F16=SortSplx F20=Right    F22=Command

12/014
Connected to remote server/host tn3270.de.ibm.com using lu/pool PU006836 and port 23

```

```

Goto Query Help

-----
CBDPCCF0          CPC Image List      Row 1 of 26 More: >
Command ==> _____ Scroll ==> PAGE

Select one or more systems of the CPC, then press Enter. To refresh the
Activate/Verify Status, press Enter without selections made.

Processor ID : DAN2          SNA Address : IBM390PS.DAN2
HSA Token   . : DAN2        12-11-14 10:09:38 SYS4      IODF71

-- Partition --- Co Sysplex ----- System -----
/ Name    ID Stat St Name      Name      Type      Level      HW SW Status
# COBCF1   2F 0001          COBPLEX   COB1      MVS       1.12
- COB1     22 0001          COBPLEX   COB2      MVS       1.12
- COB2     23 0001          COBPLEX   COB3      MVS       1.12
- COB3     24 0001          COBPLEX   COB4      MVS       1.12
Goto Query Help

# D2        0008
# D9        0008
- IRD3      13 0001 S IRDPLEX   IRD3      MVS       2.1    ? Y Activating
# LNXDWH1   0B 0001
# LNXDWH2   0A 0001
# RSE0CFE   0E 0001

# D2        0008
# D9        0008
- IRD3      13 0001 S IRDPLEX   IRD3      MVS       2.1    ? Y Messages
# LNXDWH1   0B 0001
# LNXDWH2   0A 0001
# RSE0CFE   0E 0001
- RSE1      0C 0001          RSEPLEX   RSE1      MVS       1.12
- VMCOB     2E 0001          BOEVMCOB VM      5.4
# ZMF0CFE   1F 0001
- ZMF1      14 0001          ZMF1PLEX  ZMF1      MVS       1.12
- ZMF2      15 0001          ZMF1PLEX  ZMF2      MVS       1.13
- ZMF3      16 0001          ZMF1PLEX  ZMF3      MVS       2.1
- ZMF4      19 0001          ZMF1PLEX  ZMF4      MVS       2.1
- ZMF5      1B 0001          ZMF1PLEX  ZMF5      MVS       1.13
*****

```

After pressing Enter

```

# D2        0008
# D9        0008
- IRD3      13 0001 S IRDPLEX   IRD3      MVS       2.1    ? Y Messages
# LNXDWH1   0B 0001
# LNXDWH2   0A 0001
# RSE0CFE   0E 0001
- RSE1      0C 0001          RSEPLEX   RSE1      MVS       1.12
- VMCOB     2E 0001          BOEVMCOB VM      5.4
# ZMF0CFE   1F 0001
- ZMF1      14 0001          ZMF1PLEX  ZMF1      MVS       1.12
- ZMF2      15 0001          ZMF1PLEX  ZMF2      MVS       1.13
- ZMF3      16 0001          ZMF1PLEX  ZMF3      MVS       2.1
- ZMF4      19 0001          ZMF1PLEX  ZMF4      MVS       2.1
- ZMF5      1B 0001          ZMF1PLEX  ZMF5      MVS       1.13
*****

The activate/verify status was refreshed.
*****

```

Usage & Invocation

- Action code m for 'view activate messages' shows a list with the activate messages related

```
Save Query Help      Message List
-----
CBDPMSG2                               Row 1 of 5
Command ==> _____ Scroll ==> PAGE

Select one or more messages, then press Enter. To refresh the list, press
ENTER without selections made. To reply to a WTOR message, use the REPLY
command.

System name: IRD3

/ Message Text
_ IOS500I ACTIVATE RESULTS 330
# TEST DETECTED NO CONDITIONS WHICH WOULD RESULT IN ACTIVATE
# FAILURE
# NOTE = 0100,SOFTWARE-ONLY CHANGE
# COMPID=SC1C3
***** Bottom of data *****
```



Usage & Invocation

```

Session C - [32 x 80]
File Edit View Communication Actions Window Help
Goto Query Help
--
C      Process System Command
S
A      Specify a system command. It will be executed on the selected target
P      system. Press ENTER to continue.
H
      System . . : TRX1
      Sysplex . . : TRX1PLEX
      Command . . d ios,config(all)_
/
Do you want the specified command being
executed on all systems in the sysplex ? 2  1. Yes
                                           2. No
#
#      F1=Help    F2=Split  F3=Exit   F5=Reset  F9=Swap  F1
#
# R35LP56  3B 0002
# R35LP58  3D 0001          BOER3558 VM      6.1
# R35LP59  3E 0001          BOER3559 VM      5.4
# R35LP60  3F 0001          BOER3560 VM      6.1
# c TRX1    2C 0001 Y  TRX1PLEX TRX1    MVS    2.1    Y  Y
# TRX2     3C 0001 S  TRX1PLEX TRX2     MVS    1.13   Y  Y
***** Bottom of data *****
#
#      F1=Help    F2=Split  F3=Exit   F4=Prompt  F7=Backw
#      F9=Swap    F10=Actions F12=Cancel F13=Instruct F14=SortN
#      F16=SortSplx F20=Right F22=Command
MA  c
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```

System commands can be issued for the remote system or all systems of a remote sysplex.

```

Session C - [32 x 80]
File Edit View Communication Actions Window Help
Goto Query Help
Save Query Help
-----
Message List
-----
Row 1 of 28
Command ==> Scroll ==> PAGE
Select one or more messages, then press Enter. To refresh the list, press
ENTER without selections made. To reply to a WTOR message, use the REPLY
command.
System name: TRX1
/ Message Text
# IOS506I 17.00.07 I/O CONFIG DATA 380
# ACTIVE IODF DATA SET = SYS1.IODF01
# CONFIGURATION ID = MVSVM          EDT ID = 00
# TOKEN: PROCESSOR DATE          TIME DESCRIPTION
# SOURCE: R35 11-11-15 07:33:54 SYS4 IODF71
# ACTIVE CSS: 2 SUBCHANNEL SETS CONFIGURED: 0, 1, 2
# CHANNEL MEASUREMENT BLOCK FACILITY IS ACTIVE
#      F1=Help    F2=Split  F3=Exit   F4=Prompt  F5=Reset
#      F7=Backward F8=Forward F9=Swap   F10=Actions F12=Cancel
#      F13=Instruct F22=Command
***** Bottom of data *****
#
#      F1=Help    F2=Split  F3=Exit   F4=Prompt  F7=Backward F8=Forward
#      F9=Swap    F10=Actions F12=Cancel F13=Instruct F14=SortName F15=SortStat
#      F16=SortSplx F20=Right F22=Command
MA  c
Connected to remote server/host tn3270.de.ibm.com using lu/pool FU0U6836 and port 23
15/004

```

Messages resulting from the system command are displayed in a message list.



Usage & Invocation

New profile options:

- `CONNECTION_TABLE = <dataset-name>` specifies the name of a data set that contains the table for establishing connectivity to the remote systems via TCP/IP.
- `RCALL_LOG = YES | NO` specifies whether remote HCD calls are logged in dataset `hlq.CBDQCLNT.LOG`.
- `RCALL_TIMEOUT = <seconds>` specifies the timeout value for the initial connection to a remote system. Default is 60.



Interactions & Dependencies

- The HCD dispatcher program has to be started on each remote target system listening to the IP port given in the connection table.
- Software Dependencies
 - Remote systems must run z/OS V1R10 or z/VM V5R4 or higher
 - Compatibility PTFs for back-level systems must be installed (OA37901, VM64976)
- Hardware Dependencies
 - Local and remote systems must reside on z9 or higher servers.
- Exploiters
 - HCD users / systems programmers responsible for dynamic I/O changes



Migration & Coexistence Considerations

- The HMC wide Activate function coexists with the other Activation methods of HCD (via commands, or HCD options 2.6 or 2.7)
- Migration actions may be required. See security definition for APPL class.
- Coexistence APARs:
 - For z/OS: OA37901
 - For z/VM: VM64976



Installation

- Customers have to set up a consistent naming convention for production IODFs on the target systems.
- A connection table has to be prepared which contains an entry for at least one system of each target sysplex or each single target system to be remotely managed.
- Each target system must have a user ID and run the HCD dispatcher. This user ID must be set up as if the Activate requests would be conducted locally (access to the active IODF and its volume).
- Remotely managed systems must be enabled for dynamic activates (reset and image profile settings).
- BCPii address space must have been started on the managing system.



Installation

- Support Element (SE) and SAF authorizations must be established:
 - For z/OS BCPii calls:
 - Enable BCPii calls for managing logical partition (SE)
 - Define BCPii community name (SE, SAF)
 - Enable managing user ID for BCPii calls to target CPCs and images (SAF)
 - For remote HCD calls:
 - Remote user ID must have ALTER capability for the new production IODF.
 - Profiles for Activate commands (MVS.ACTIVATE) with UPDATE right in OPERCMDS class profile
 - Pass-ticket support if passwords are not used in the connection table



Customization - Passtickets

- The RACF class PTKTDATA must be activated, if not already done:
 - SETROPTS CLASSACT(PTKTDATA)
 - SETROPTS RACLIST(PTKTDATA)
- Then define a profile for the HCD dispatcher (CBDSERVE) with an associated encryption key and authorize user:
 - RDEFINE PTKTDATA CBDSERVE SSIGNON([KEYENCRYPTED|KEYMASKED](<key>))
 - SETROPTS RACLIST(PTKTDATA) REFRESH
- Define a profile for user and authorize connecting user:
 - RDEFINE PTKTDATA IRRPTAUTH.CBDSERVE.* UACC(NONE)
 - PERMIT IRRPTAUTH.CBDSERVE.* CLASS(PTKTDATA) ID(<user>) ACCESS(UPDATE)
 - SETROPTS RACLIST(PTKTDATA) REFRESH
- If APPL class is active and a profile that covers application ID CBDSERVE is available:
 - RDEFINE APPL CBDSERVE UACC(NONE)
 - PERMIT CBDSERVE CLASS(APPL) ID(<user>) ACCESS(READ)

For more information about configuring RACF to use PassTicket services, refer to z/OS Security Server RACF Security Administrator's Guide.



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

