# Using HCD for I/O Configuration Training

Duration: **3 Day**

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## Overview

The Hardware Configuration Definition (HCD) program is the I/O configuration tool for the z/OS environment. This course, designed for experienced z/OS Systems Programmers, will provide detailed and essential information on all aspects of HCD as well as teaching the techniques required to design and implement an efficient z/OS I/O configuration.<br><br>The course includes as number of challenging hands-on practical exercises to reinforce the classroom sessions.<br><br>This course is also available for one-company, on-site presentations and for live presentation over the Internet, via the Virtual Classroom Environment service.

## Prerequisites

Attendees should have a good understanding of z/OS at a conceptual level and the ability to use TSO/ISPF and JCL.

## What You Will Learn

- describe the role of HCD with IOCP/MVSCP
- use HCD panels to define a configuration comprising Processors, Logical Channel Subsystems, LPARs and MIF, Channels (ESCON, FICON, OSA, CF links, Hipersockets and Routers), Control Units and I/O devices
- describe the constraints and issues in building an I/O configuration
- understand the concept of Logical Control units and Parallel Access Volumes
- define FICON directors
- define the OS Configuration
- define Eligible Device Tables (esoterics, tokens and generics)
- define NIP consoles
- create validated work IODFs
- use the CHPID Mapping tool to include PCHIDs in the configuration
- create production IODFs
- plan for Dynamic I/O reconfigurations
- use HCD functions to maintain the IODFs
- migrate an IOCP.

## Outline

**Introduction**

I/O configuration principles; I/O configuration practicalities; I/O configuration addressing; HCD definition process; Objects managed by HCD; LOAD member of PARMLIB; IODF processing at IPL; IPL & NIP LOAD messages.

**HCD Dialogs**

HCD and ISPF; ISPF selection menu; HCD Primary Option menu; Creating a new work IODF; Sizing the work IODF; Defining the new configuration menu; Pull-down menu action bar; GOTO pull-down menu;

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Filter pull-down menu; Backup pull-down menu; Query pull-down menu; Help pull-down menu; Context menus; PF keys; Keyboard navigation.

**Creating a New Configuration**

Getting started; Configuration structure; Sample configuration; Operating system definition; Operating system configuration list; Add an operating system; Add a Processor; Processors & LCSSs; Logical Channel Subsystems; Multiple Logical Channel Subsystems; Define Processor support level; Updated processor list; LPAR definition Flow; Actions on selected processors (LPARs); Channel Subsystem List; Partition List; Add Partition; Updated Partition List; Channel Path definition; Actions on selected Channel Subsystems (CHPIDs); Channel Path Lists; Connect CHPID to LPAR; Control Unit definition; Control Units; Connect CU to Processor; Actions on selected processors; Logical Control Units; Device definition; I/O Devices; Define Processor Device Parameter; Define OS Device parameters; Parallel Access Volumes (PAVs); HiperPav; Define Eligible Device Tables; Esoteric definition; Action on EDTs; Esoteric List; Assign Devices to Esoteric; NIP console definition; Actions on Operating System consoles; NIP Console List; Creating a Validated Work IODF; IODF Activation Menu; IODF build messages: errors, error actions, error explanation; Validated Work IODF name.

**Defining FICON Directors (Switches)**

The FICON Director; Switch configurations; Switch definition; Sample configurations; Switch List (no switches defined); Basic Fibre Channel Topology; Switch List (switches defined); Actions on Switches; Actions on Processors; Add a Switch Channel Path; Connect CHPID to LPAR; Switch Control Unit definition; Define Control Units; Define I/O Devices; Actions on Devices; Connect Switch Device to Operating System; Cascaded FICON Switches.

**Dynamic I/O Configuration**

Dynamic reconfiguration in operation; Dynamic reconfiguration prerequisites; Device characteristics; Device modification categories; IODF processing at IPL; Software only changes; Virtual Storage considerations; Preparing for Dynamic Reconfiguration; Activation Menu; View Active configuration; Activation Scope messages; Activation Main Menu; Test active new configuration; Test Active Message List; Performing Dynamic Reconfiguration; Activate New Configuration; Dynamic Activation Message List; Dynamic Activation in a Sysplex; Active Sysplex Member List; Actions on Selected Systems; Activate System Wide; Don't forget the applications.

**Coupling Facility**

Coupling Facility; Create a CF LPAR; Coupling Facility links; Create CF Links; Connect LPARs together; InfiniBand links.

**OSAs, Hipersockets & Channel Attached Routes**

OSAs, Hipersockets and Channel Attached Routes; OSA Diagnostic device; QDIO and non-QDIO; OSA Express CHPID definitions; Adding an OSA Control Unit and Device; Adding OSAD Device; Hipersockets; Hipersockets definition; CHPID Type IQD; MTU Sizes; Channel Attached Routers and Servers; OSC consoles and OSN networks.

**CHPID Mapping Tool Workflow**

CHPID Mapping Tool Workflow; Build IOCP input data set; IOCP input data set; Update the priority

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values; IOCP with PCHIDs; Migrate the configuration data.

**Utilities & Batch Processing**

Print or Compare Configuration Data; Print Configuration Reports option; Report Type Selection; Report filtering; Print the activity log option; View the activity log option; Compare IODFs option; Compare IODFs report selection; Filtering Processor Compare Reports; Filtering Switch Compare Reports; Filtering OS Compare Reports; Selecting Compare Report Options; Compare CSS/OS Views option; Comparing hardware and software views; Maintaining IODFs; Delete IODF option; Copy IODF option; Copy IODF selection; View IODF option; View IODF output; Build IOCDS option; Build IOCDS - file selection; Build IOCDS - create file; HCD as a batch job; Printing reports in batch; Comparing IODFs in batch; Software & Hardware Compare in Batch; Copying an IODF in batch. Building an IOCDS in batch.

**Online Exercises**

There are extensive practical exercises throughout this course.