IBM System z Parallel Sysplex Operations

Dauer: 3 Tage  Kurscode: ES73G

Kursbeschreibung:

This course is designed so that students can learn how z/OS systems operate in a Parallel Sysplex environment through discussion topics and hands-on lab exercises. You learn problem determination skills, practice enhanced sysplex operations, including management of the coupling facility (CF), and use recovery capabilities provided by the System z servers. The course consists of six units and 12 hands-on lab exercises.

Zielgruppe:

The audience includes operations personnel and technical staff who are directly involved in the installation, operation, systems support, and software support of their Parallel Sysplex environment.

Kursziele:

- Identify the difference between a base and a Parallel Sysplex
- Describe the hardware components of a Parallel Sysplex
- Describe the software components of a Parallel Sysplex
- List sysplex couple data sets and define their purpose
- Identify and describe sysplex commands to display signaling and couple data set usage
- Identify all coupling facility links, speeds, and connectivity options for System z servers
- List the various structure types and how they are used
- Identify potential users of a CF
- Describe the CFRM policy and required parameters within the policy
- Describe how the CF is used to enable resource and data sharing
- Use commands to display and change the operational status of a CF
- Use the various z/OS commands to determine the current status of sysplex members
- Remove a system from the sysplex
- Describe structure and connector attributes
- Use z/OS commands to resolve a problem structure status
- Use z/OS commands to remove, add sysplex primary or alternate couple data sets, and modify CDS settings
- Describe procedures for moving off a coupling facility for maintenance or other reasons
- Describe the operator options to relocate structures between CFs
- Describe and identify various sysplex CF configurations, including high-availability CF configurations
- Describe the types of failures and recoveries that can be automated with SFM
- Start and stop SFM policies and identify SFM actions for each system
- Identify new SFM support at z/OS 1.8 and z/OS 1.9
- Determine the status and parameters of any sysplex console
- Use z/OS commands to display console attributes, change console attributes, and route messages to any sysplex member
- Describe the use and purpose of console switching groups
- Identify console updates that apply to z/OS 1.8 and z/OS 1.10
- Define why time synchronization is required in a sysplex
- Describe time synchronization options in a sysplex
- Describe Sysplex Timer (9037) configurations
- Define server time protocol terminology and configurations:
- Mixed
- STP-only
- Identify three major phases of the IPL process
- Describe what happens during each phase of the IPL process
- Identify and resolve IPL-related problems
- Perform a successful IPL of the z/OS system
Use z/OS, JES2 commands, and CFRM policies, if required, to remove structures, CF links, and CFs

Voraussetzungen:

You should have an understanding of:

- Basic data processing and I/O concepts and terminology
- z/OS console operation, including display of device, job, and console status

Students should also have attended:

IBM System z Hardware Management Console (HMC) Operations (ES24) or should have experience with HMC.
Schulungsinhalt:

The course consists of six units and 12 hands-on lab exercises.

The six units describe, define, and explain what a sysplex configuration consists of, the purpose and use of the coupling facility, operational procedures and commands to manage components of the sysplex, the use and purpose of the Sysplex Failure Manager, the importance of time synchronization and how it is achieved, and the IPL process. The six units are as follows:

- **Unit 1: Sysplex overview**
  This unit describes sysplex terminology, concepts, and benefits provided by a sysplex configuration. It identifies the various software and hardware components that make up the Parallel Sysplex environment.

- **Unit 2: Coupling Facility**
  The purpose of this unit is to describe the CF link connectivity options, how the CF operates, and the users of the CF. The CF policy is described and explained along with commands to control and monitor the CF.

- **Unit 3: Sysplex operation and recovery**
  The purpose of this unit is to identify the commands and procedures required to manage a sysplex. Normal, day-to-day and failure-recovery operational procedures for structures, CFs, CF links, and couple data sets are discussed. CF configurations are discussed and sysplex configurations for the highest availability are explained.

- **Unit 4: Sysplex Failure Manager and console operations**
  This unit describes SFM operation, use, and support that was added with z/OS 1.8 and z/OS 1.9. It also describes sysplex console operations support and use, including console updates that apply to z/OS 1.8 and z/OS 1.10.

- **Unit 5: Sysplex timer and Server Time Protocol operation**
  This unit describes the importance of time synchronization in a Parallel Sysplex and how it is achieved. It describes the timing configurations (Sysplex Timer and Server Time Protocol) that can be used in the System z servers, including terminology and configuration support.

- **Unit 6: z/OS IPL flow**
  This unit describes the major phases within a IPL.

The lab exercises consist of nine labs that are included to address sysplex configuration setup, parmlib configuration, and management of couple data sets, structures, connections, and coupling facilities.

Three optional labs are also included to address how JES2 checkpoint can be moved from DASD to CF and back again, Sysplex Failure Manager (SFM) settings and policies, and managing systems within a sysplex.

- **Exercise 1: Set up to access the lab environment**
  This exercise provides the procedures necessary to log on to the lab environment.

- **Exercise 2: Sysplex parmlib configuration**
  This exercise provides an opportunity to identify the initial parmlib members and some key entries that are defined for a sysplex configuration. These entries are used at IPL time.

- **Exercise 3: Using z/OS commands to determine sysplex status**
  This exercise provides an opportunity to use MVS commands to determine the operational status of all sysplex components.

- **Exercise 4: Managing XCF signaling paths**
  This exercise provides an opportunity to manage pathin and pathout signaling.

- **Exercise 5: Couple data sets**
  This exercise provides an opportunity to determine the operational status of all the couple data sets in use by the sysplex. It also demonstrates the use of z/OS commands to modify CDS settings, remove CDS settings, and return a CDS to the sysplex.

- **Exercise 6: Managing structures within and across multiple CFs**
  This exercise provides the opportunity to manage sysplex structures by changing the allocation status, manually altering their size, and relocating structures across coupling facilities (CFs).

- **Exercise 7: Managing structures with failed persistent connections.**
  This exercise provides the opportunity to practice recovery procedures for structures containing failed persistent connections.

- **Exercise 8: Managing coupling facilities**
  This exercise provides the opportunity to practice moving the JES2 checkpoint data set into and out of a structure in a CF. It also identifies how to delete an allocated structure with zero connections.

- **Exercise 9: CF Maintenance mode (z/OS 1.9 and above)**
  This exercise provides the opportunity to remove a CF from the sysplex using the new MAINTMODE command introduced at z/OS 1.9.

- **Exercise 10: Moving JES2 checkpoint into and out of the CF (optional)**
  This exercise provides practice moving the JES2 checkpoint data set into and out of a structure in a CF. It also identifies how to delete an allocated structure with zero connections.

- **Exercise 11: SFM lab (optional)**
  This exercise uses XCF commands to start, stop, and identify SFM policy settings. Additionally, it provides practice in removing a system from the sysplex and returning a system to the sysplex.

- **Exercise 12: Managing systems in a sysplex (optional)**
  This exercise provides the opportunity to practice removing a system from the sysplex and returning a system to the sysplex.
z/OS initial program load (IPL) operation, the steps required to perform a successful IPL, and how to resolve problems that might be encountered during an IPL of a z/OS system.

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