BMC Mainframe: Parallel Sysplex: Operations, Troubleshooting & Recovery

COURSE ABSTRACT

COURSE CODE

» MGRS-PSOT-2021

APPLICABLE VERSIONS

» Not Applicable

DELIVERY METHOD 🌐

» Instructor-led Training (ILT)

COURSE DURATION 🌐

» 3 Days

PREREQUISITES

» Familiarity with z/OS commands and a good understanding of the principles and concepts of parallel sysplex, including XCF commands.
» BMC Mainframe: Parallel Sysplex Concepts & Facilities

RECOMMENDED TRAININGS

» NA

Course Overview

The course is developed and delivered by © RSM Technology.

This course introduces the parallel sysplex's operations environment and explains how the consoles should be set up in a sysplex, the commands, and the command facilities for sysplex operations. It also describes the IPL process and how it changes in a sysplex, showing the correct way to IPL and remove systems in this environment, as well as covering the various errors that can occur at IPL time and how to deal with them.

For troubleshooting, attendees will learn how all the major points of failure can be detected, recognized, and dealt with, including such areas as loss of systems, signaling paths, Coupling Facilities, structures, sysplex timers and Couple Data Sets.

This course now includes extensive hands-on practical sessions, including real-life recovery scenarios!

Target Audience

This course is ideal for all Systems Programmers, Operations and Support personnel whose responsibilities include operating the parallel sysplex and who must recognize and respond to problems occurring in the parallel sysplex environment.

Learner Objectives

» Efficiently operate a parallel sysplex environment
» Identify and deal with problems effectively
» Carry out problem determination in a parallel syplex environment
» Carry out recovery when required

For more information about BMC Education Services, visit **www.bmc.com/education**.

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COURSE ABSTRACT

COURSE ACTIVITIES

» Classroom Presentations

» Demonstration

BMC MAINFRAME INFRASTRUCTURE AND PLATFORMS LEARNING PATH

» https://www.bmc.com/education/courses/find-courses.html#filter/%7B%22type%22%3A%22edu-specific-types-159150236%22%7D

CERTIFICATION PATHS 🌐

» This course is not part of a BMC Certification Path

DISCOUNT OPTIONS 🌐

» Have multiple students? Contact us to discuss hosting a private class for your organization

» **Contact us for additional information** 🌐

Course Modules

Parallel Sysplex Overview

» Introduction

» What is a parallel sysplex?

» XCF, the Cross-systems Coupling Facility

» The SYSPLEX

» Multisystem environments

» It's not just signalling!

» But what about data sharing?

» The Coupling Facility

» Coupling Facility data - Structures

» Using the Coupling Facility

» Data sharing services

» OK, so WHY parallel sysplex?

» A 'single image environment'

» A sysplex is just a bigger multiprocessor!

» Management of a single image environment

» Dispatching work

» Recovery and expendability

» Continuous availability

» The D XCF, D CF and SETXCF commands

» DISPLAY XCF

The Operations Environment

» Our example system

» Example system - logical view

» Cloned images

» Cloning support

» IEASYMnn

» System symbols, types and rules

» IEASYSnn

» LOADxx, IEASYMnn and IEASYSnn

» Specifying the system name (&SYSNAME)

» An example of a cloned environment

» Console configurations

» System control & the console environment

» MCS consoles in a sysplex

» CONSOLnn definitions

» CONSOLnn definitions: IPL BP01, IPL BP03, IPL BP08

» Synchronous messages

» Using the SYSCONS

» Using EMCS consoles

» New command facilities

» Setting up and displaying system symbols

» Command scope in the sysplex

» Basic command routing in the sysplex

» More about the ROUTE command

» System groups

» Using command and message prefixing

» Displaying the command prefixes

» CMDSYS and MSCOPE

» Command flow in the sysplex

» The System Logger

» The System Logger environment

» The System Logger policy

» The OPERLOG logstream

» Using SDSF with OPERLOG

» The LOGREC logstream environment

» Switching LOGREC

» Running EREP

» Displaying the System Logger

Sysplex Operations

» The sysplex environment

» Clock synchronization techniques

» Sysplex parameters and status

» IPLing in the sysplex environment

» IPLing to initialise the sysplex

» IPLing subsequent systems

» Initializing the sysplex - multiple IPLs

» IXC405D - I, J or R?

» Removing a system from the sysplex

» Shutting down the sysplex

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COURSE ABSTRACT

» IPLing to re-initialize the sysplex
» Managing the sysplex environment
» CTC path naming conventions
» Advantages of the naming convention
» Path reconfiguration
» What's in the Couple Data Sets?
» Displaying Couple Data Set status
» Using SETXCF COUPLE
» IPLing after a Couple Data Set switch
» Sysplex management components
» Managing the Coupling Facility environment
» Changing the CFRM policy
» Moving a structure
» Removing a Coupling Facility
» Repopulating a Coupling Facility
» Displaying Coupling Facility resources
» Structure duplexing
» Starting & stopping duplexing
» SETXCF: START, STOP, MODIFY, COUPLE, FORCE

IPL Problem Determination
» What can go wrong?
» Your options if a problem occurs
» How to avoid most of these problems
» Incorrect path definitions
» Not enough path definitions
» Unable to establish connectivity
» Miscellaneous COUPLExx errors
» Sysplex configuration parameters
» PLEXCFG mode problems

» Duplicate or inactive systems in the sysplex?
» A reminder: IXC405D - I, J or R?
» Slow systems or fast operators
» Couple Data Set problems
» Initializing the Coupling Facilities at IPL
» Coupling Facility ownership problems
» Coupling Facility reconciliation failure
» Internal XCF component errors

Runtime Problem Determination
» It's the sysplex that counts, not the individual systems
» Murphy's Law
» Redundancy is good for you!
» Our example configuration
» Failure events and recovery options
» CTC signaling path reconfiguration
» Losing the last or only CTC signaling path
» Structure signaling path 'reconfiguration'
» Losing the only CFC to a signaling structure
» Losing the only CF (using a structure for signaling)
» Losing the only signaling structure
» 'Status update missing' conditions
» Removing the system and replying "down"
» SPINTIME and INTERVAL
» System Isolation techniques
» SFM and ARM
» The Sysplex Failure Manager (SFM)
» SFM policy options
» SFM processing for connectivity failures

» CF signaling, connectivity failures and SFM's weights
» SFM processing for status update missing
» SFM, system isolation
» Time interval relationships with SFM
» The SFM environment
» Enabling SFM, switching SFM datasets
» Other SFM considerations
» Clocks, clocks and more clocks
» ETR / TOD synchronization
» ETRDELTA
» Sysplex Timer connectivity problems
» Losing the sysplex timer
» Couple Data Set problems
» Failures in the Coupling Facility environment
» Coupling Facility and CFC error indicators
» Structure rebuild - an overview
» Structure rebuild - why?
» Structure rebuild controls
» Structure rebuild - application support
» Automatic Restart Manager
» The ARM policy
» The ARM defaults
» Manipulating the ARM environment
» ARM element states
» D XCF ARMSTATUS
» ARM restart, same system
» ARM restart, cross-system
» ARM considerations

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