



BMC Mainframe: z/OS System Problems Resolved - Quickly and Effectively

COURSE ABSTRACT

COURSE CODE

» MGRS-ZPRE-2021

APPLICABLE VERSIONS

» Not Applicable

DELIVERY METHOD

» Instructor-led Training (ILT)

COURSE DURATION

» 3 Days

PREREQUISITES

- » BMC Mainframe: Using z/OS Assembler
- » BMC Mainframe: z/OS System Anatomy Part 1 - z Architecture
- » BMC Mainframe: z/OS System Anatomy Part 2 - z/OS Infrastructure & Services

RECOMMENDED TRAININGS

» NA

Course Overview

The course is developed and delivered by © RSM Technology.

When system problems occur companies often automatically send the dumps to IBM, without looking at them first. However, as we all know, z/OS today is almost invariably a multi-vendor software environment.

This course teaches you the vital (yet simple) techniques that will quickly glean maximum information from the diagnostic data. This lets you identify the vendor product responsible for the problem, and ultimately verify their diagnosis of the problem.

This course describes and explains what can go wrong in an IBM z Systems environment, and what you can do about it as an operator or systems programmer. It looks at failure situations from many points of view, including hardware problems and the software environment.

The software environment is further examined by looking at the Recovery Termination Manager (RTM) - the 'cleaning-up' function of z/OS - and its ABEND concept. All the different reports that come out of a z/OS system in conjunction with failures (messages, dumps, traces, etc.) are also discussed. The most common reasons for system ABENDs (and how you can analyze the information coming out of the system when they occur) are also covered.

Target Audience

This course is designed for all those in technical support and operations who are responsible for problem determination.

Learner Objectives

- » Identify which software component caused the problem
- » Identify the vendor responsible for the problem
- » Glean the most relevant diagnostic information in the minimum time
- » Use the appropriate diagnostic procedure for each type of dump
- » Identify the failing operating system component in standalone and SVC dumps
- » Use various operating system data-gathering facilities such as system traces, LOGREC, and SLIP
- » Locate information in various manuals that is critical to problem resolution
- » Develop a methodology to speedily extract the required information for resolving a problem situation



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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

Interactive Problem Control System

- » Control block/data area
- » Information sources
- » Control block header
- » Control block data area map
- » Cross reference table
- » Fields and subfields
- » Field redefinitions
- » Control block chaining
- » Finding control blocks
- » The Prefix Area (PSA)
- » The new Prefix Area (PSA)
- » Dump types
- » IPCS introduction: what is IPCS?, What makes up IPCS?
- » Getting started with IPCS - Primary Option Menu
- » Default values selection
- » Primary Option Menu
- » Data entry panel
- » Pointer stack panel
- » Getting around in IPCS browse
- » IPCS subcommand entry panel

- » IPCS command output display
- » IPCS LIST command
- » Indirect addressing
- » Displaying Control Blocks
- » Creating SYMBOLS: Dump Directory
- » Additional Useful Commands
- » Dump analysis panel
- » Component Data Analysis Panel
- » STATUS
- » Analysis commands
- » Dump Management panel

Recovery & Termination

- » MVS's recovery management
- » RMS
- » What does RTM do?
- » Interrupt types
- » Anatomy of an Interrupt
- » RTM - The Big Picture
- » How is RTM invoked?
- » Normal termination
- » Abnormal termination - problem types
- » Program check
- » Software 'Abend'

- » Abnormal termination - recovery
 - » Recovery routines
 - » RTM status information
 - » ESPIE environment
 - » ESPIE processing
 - » ESTAE recovery routines
 - » ESTAE environment
 - » STAE Control Blocks (SCB)
 - » ESTAE processing
 - » Percolation
 - » Functional Recovery Routines
 - » FRR environment
 - » FRR stacks
 - » RTM2WA
 - » SDWA
 - » Variable Recording Area
 - » Interpreting the SDWA
 - » Interpreting the Variable Recording Area
 - » Logrec detail reports
- ### Request Block Analysis
- » Address space structures
 - » RB loss of control
 - » Linkage stacks

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- » RB analysis procedure
- » Linkage Stack analysis
- » General analysis
- » RB analysis

System Trace

- » Starting the System Trace
- » Formatting the Trace
- » Sequence of events
- » Interpreting Traces
- » System Trace tips

SVC Dump Analysis Approach

- » Generating SVC dumps
- » Dump Analysis and Elimination
- » Types of SVC Dump
- » Problem resolution overview
- » Dump TITLE
- » SDWA
- » History
- » RTM2WA
- » Other dump types

Multi Processor Environments

- » Tightly coupled processing
- » Prefixing
- » Processor coexistence
- » Processor STATUS
- » Work In Progress
- » Interrupt information

Locks

- » The problem
- » An example of what can go wrong
- » Serialization via LOCKS
- » Lock varieties
- » Locking Hierarchy
- » Locking Mechanics (SPIN)
- » Spin Loop Identification
- » Spin Lock Holder
- » Local/CML Locks
- » Locking Mechanics
- » Global Suspend Locks ANALYZE
- » Locks Held
- » Locking Mechanics (CPU LOCK)

- » SPIN lock summary
- » SUSPEND lock summary
- » ANALYZE

Dispatcher

- » What does it mean to be dispatched?
- » Where does the dispatcher run?
- » Dispatchable units of work
- » Who calls the Dispatcher?
- » Special exits
- » Service Request Block routines
- » Service Request Block (SRB)
- » SRB example - IOS post
- » Service Request Block (SRB)
- » Suspended Service Request Block (SSRB)
- » SRB priorities
- » SRB scheduling with IEAMSCHD
- » SRB enclaves
- » Dispatcher queues
- » Scheduling service requests
- » Address spaces
- » ASCB/ASXB contents
- » Finding work within an address space - tasks
- » TCB contents
- » TCB chaining
- » Address space task structure
- » Serialization with Intersect
- » Dispatcher indicators
- » Global problem determination
- » Global indicators - SRB queues

Address Space Control

- » Cross Memory Services
- » XMS instructions
- » PC & PT/PR
- » XMS authorisation
- » Primary, Secondary & Home modes
- » Access Register mode
- » SSAR
- » Access Register Translation (ART)
- » Access lists
- » ALETs

SAD Analysis Approach

- » Big picture
- » Dump environments
- » When should A SADUMP be taken?
- » Pre SADUMP considerations
- » Taking a Standalone Dump
- » Stand Alone Dump analysis path selection
- » Disabled Wait analysis path
- » Enabled Wait Analysis path
- » Enabled Running Analysis path
- » Disabled Running Analysis path

Input/Output Supervisor

- » IOS drivers
- » Performing I/O
- » I/O flow
- » IOS analysis - high level
- » Active I/O analysis
- » IOS failure analysis

Real Storage Manager

- » Types of storage
- » Dynamic Address Translation
- » Identifying The STD
- » Managing real storage
- » RSM high level check
- » Detailed analysis - high fixed page utilisation
- » Detailed analysis - other problems
- » History - Component Trace

Auxiliary Storage Manager

- » Paging a frame to a slot
- » ASM high level check
- » Detailed analysis: what is the problem?, who is affected?