



BMC Mainframe: z/OS UNIX System Services Part 2 - Configuration & Implementation

COURSE ABSTRACT

COURSE CODE

» MGRS-ZUS2-2021

APPLICABLE VERSIONS

» Not Applicable

DELIVERY METHOD

» Instructor-led Training (ILT)

COURSE DURATION

» 2 Days

PREREQUISITES

- » BMC Mainframe: z/OS UNIX System Services Part 1 - Concepts & Facilities
- » Or have equivalent experience

RECOMMENDED TRAININGS

» NA

Course Overview

The course is developed and delivered by © RSM Technology.

This course follows on from the course **UNIX System Services Part 1 - Concepts & Facilities**. It teaches the skills needed to install, configure and implement UNIX System Services in a z/OS environment. The course goes on to describe and explain how to manage the new environment efficiently and effectively, with a specific focus on security.

Target Audience

Experienced mainframe technicians working in a z/OS USS environment.

Learner Objectives

- » Plan the installation and implementation of USS
- » Implement USS
- » Customise USS
- » Maintain the HFS environment
- » Describe the constraints on USS
- » Apply RACF security to the environment
- » Manage a USS environment



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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

USS Features & Services

- » UNIX internals overview
- » The Kernel: LOADxx and the IPL process: Load Unit Address, The LOAD parameter - ddddxxsn, The LOADxx member
- » The UNIX support in z/OS
- » Displaying OMVS processes
- » The UNIX support in z/OS
- » USS z/OS packaging
- » z/OS and USS comparative functions
- » Terminal and workstation support
- » Special TSO/E commands
- » Controlling z/OS UNIX - BPXPRMxx parmlib member
- » Displaying OMVS information
- » Displaying OMVS information
- » ulimit - a (shell command)
- » New ISPF panels
- » The Shell
- » USS functions
- » Processes and fork()
- » fork() and shared storage
- » spawn() function
- » Inter-Process Communications functions
- » Memory mapped files

- » Threads
- » Daemon processes
- » The UNIX file system
- » The system files - /etc, /dev, /bin and others
- » Display File systems
- » Practical exercise

USS Installation

- » Steps to install USS
- » Modes of running USS
- » WLM support for fork() and spawn()
- » Prepare for security
- » RACF profile extensions
- » Create the root file system
- » Initialisation shell scripts
- » Inittab; etc/rc; etc/profile
- » \$HOME/.profile
- » Customize parmlib members
- » Controlling USS - BPXPRMxx parmlib member
- » BPXPRMxx: maximum sizes, miscellaneous, file systems, network; RESOLVER PROC
- » Dynamically changing the BPXPRMxx options
- » BPXPRMxx - Individual overrides

- » FILESYSTYPE buffer parameters
- » USS work
- » Why USS uses WLM
- » UNIX Services fork and spawn function calls
- » USS Service Classes
- » USS classification rules
- » Definitions for OMVS subsystem type work
- » Cataloged procedures used by USS
- » Customize cataloged procedures
- » Performance enhancements using the VLF
- » Completing the preparation for USS
- » File Security Packet (FSP)
- » Start USS
- » Running OMVS workload in batch
- » New JCL keywords
- » Syntax of new JCL keywords
- » Initial file system
- » HFS sharing
- » Extended file system
- » Version HFS - an example
- » System HFS - an example
- » Applying maintenance to HFS products - requirements
- » Applying maintenance to HFS products - steps

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- » Applying maintenance to HFS products - Verification/Activation
- » Practical exercise

USS File Systems

- » Using files from UNIX programs
- » Managing UNIX files in z/OS
- » The Hierarchical File System
- » UNIX files and file systems: The Physical File System (PFS), The Logical File System (LFS)
- » Device drivers
- » Directory structure
- » The root file system
- » The root file system z/OS
- » Shared file system
- » Mount points
- » Mounting file systems
- » Automount facility
- » Automount setup
- » Initial file system structure
- » Path and file names
- » Lengths of path and file names
- » Specifying UNIX files in z/OS
- » File attributes
- » Accessing HFS files
- » File administration with TSO/ISPF
- » Special TSO/E commands
- » Copying UNIX files with TSO/E
- » OPUT, OGET, OCOPY and BPXCOPY examples
- » Character sets and code conversion
- » EBCDIC code pages
- » Code translation
- » Code conversion when copying
- » Managing HFSs - confighfs
- » Space management of zFS
- » Backup/Restore
- » Copying POSIX files with TSO/E
- » Backup/Restore using UNIX Utilities
- » Backup/Restore using TSM

zFS File System

- » What is z/OS DFS zFS?

- » What are zFS file system aggregates?
- » Distributed File Service required for zFS
- » Sample Parameter File-IOE.SIOESAMP(IOEFSRPM)
- » zfsadm shell command
- » zFS utility programs
- » Defining zFS - action summary
- » zFS Colony Address space
- » Allocating zFS aggregates
- » zfsadm format command
- » zfsadm format in batch
- » Growing aggregates
- » Mounting a zFS file system
- » Cloning
- » Migrating from HFS to zFS
- » BXHWH2Z
- » Practical exercise

zFS Performance

- » zFS cache & performance
- » IOEPRMxx performance parameters
- » zFS performance data via an API
- » zFS performance data - zfsadm query
- » zFS cache - user & metadata
- » zFS cache - metadata
- » zFS cache - transaction & log
- » zFS cache - vnode 5-16
- » Directory backing cache
- » zFS I/O by aggregate
- » SMF records for USS
- » RMF reporting for USS
- » zFS Activity Report
- » zFS Summary Report
- » RMF Monitor III reporting for USS

USS RACF Security

- » USS Security with RACF
- » z/OS UNIX process
- » RACF profile extensions
- » OMVS segments
- » System resource limits
- » UNIX identity
- » Kernel security

- » User definition - superuser
- » Define regular uids & gids
- » Switch to superuser mode
- » UNIXPRIV class
- » UNIXPRIV class
- » UNIXPRIV privileges
- » Controlling usage of shared IDs
- » SHARED keyword for AU, ALU, AG, ALG
- » SEARCH enhancement to map UID & GID
- » Automatic UID/GID assignment
- » set-uid & set-gid files
- » Program controlled executables
- » Enhanced Program Security
- » Controlling daemons
- » Defining OMVSKERN as a daemon
- » Enhanced Program Security & BPX.MAINCHECK
- » Controlling servers
- » UNIX level vs z/OS UNIX level security
- » TTY Group
- » Started task requirements
- » Define miscellaneous BPX.* facility profiles
- » Program attributes - APF & program controlled
- » File security packet extattr bits
- » Authorisation required to set extattr bits
- » What are sanction lists?
- » Setting up sanction lists
- » Set up users' field level access to OMVS segments
- » UNIX file security
- » File access control with Permission Bits
- » Making the RESTRICTED attribute applicable to UNIX files
- » The chown command - change file owner
- » The chmod command - change file mode (permissions)
- » Default file permissions and the umask command
- » Access Control Lists (ACLs)
- » File access control with Permission Bits and ACLs
- » ACL inheritance

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- » Authority to create ACLs
- » getfacl and setfacl commands
- » getfacl
- » getfacl - display all ACLs for a directory
- » setfacl - change permission bits
- » setfacl - change ACL entries
- » Using the UNIX 'find' command
- » Overriding UNIXPRIV authority with ACL entries
- » Authorisation checking - summary
- » Auditing users & processes
- » Auditing USS

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