ProTech Professional Technical Services, Inc.

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Course Outline

RACF for z/OS Systems Programmers

Course Summary

Description

This advanced three-day course, designed, written and presented by specialist RACF consultants, specifically focuses on RACF from a systems programmer's perspective.
The course provides a uniquely detailed insight into the technical architecture of RACF and RACF's relationship to z/OS. It describes and explains how RACF is implemented, and how it can be customized using standard RACF facilities.

Extensive hands-on practicals accompany the theory with each student having their own RACF system to customize.

Objectives

At the end of this course, students will be able to:

- Describe the RACF architecture, its components and facilities
- Customize RACF to meet the requirements of their organization and its environment
- Describe and use all of the RACF Utilities, using JCL and REXX/CLIST
- Identify how the operation of RACF changes when running in a parallel sysplex
- Describe and explain the IPL process and the security issues associated with facilities such as APF, PPT, System Exits and Linklist
- Describe the components of the RACF database.

Topics

- What is RACF?
- z/OS Technical Overview
- The RACF Database
- RACF Modules
- RACF in a Sysplex
- RACF Utilities
- RACF Control Blocks
- RACF Macros
- RACF Exits

Audience

The course is suitable for all experienced Systems Programmers and experienced RACF Administrators who need to understand the technical aspects of RACF.

Prerequisites

Attendees should have a full understanding of RACF at a conceptual level and be familiar with all of the RACF commands and how they are utilised. This can be achieved by attending the courses RACF Administration & Auditing and Advanced RACF Administration.

Duration

Three days

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I. What is RACF?

A. Why do we need security?
B. What does security provide?
C. How does RACF work?
D. RACF Profiles
E. RACF classes
F. How many RACF classes?
G. Controlling access
H. RACF commands.

II. z/OS Technical Overview

A. z/OS controls & drivers
B. The IPL process
C. PARMLIB & IPLPARM
D. Display IPLINFO
E. LOADxx & IODF
F. System parameter list IEASYSxx
G. What is APF?
H. Defining an APF authorised library
I. Program Properties Table
J. Linklist; Dynamic changes
K. SMFPRMxx; System exits
L. In-storage profiles
M. RACLIST & GENLIST
N. Group tree in storage
O. ACEE data in memory.

III. The RACF Database

A. The RACF database
B. Database format
C. Database templates
D. RACF templates
E. Issues
F. Dynamic template objectives
G. New template support
H. RACF initialization
I. IRRMIN00
J. Multiple database support
K. RACF database sharing
L. The RVARY command
M. RVARY passwords
N. RACF FAILSOFT processing
O. Database backup & recovery.

IV. RACF Modules

A. RACF control tables
B. Modules everywhere!
C. ICHRDSNT
D. ICHRRNG
E. Class Descriptor Table (CDT)
F. Dynamic CDT
G. Defining a Dynamic CDT
H. Rules
I. POSIT values
J. New segment CDTINFO
K. CDTINFO options
L. Managing Dynamic CDTs
M. Migration Utility (CDT2DYN)
N. ICHRFR01
O. ICHRIN03
P. ICHAUTAB
Q. ICHNCV00.

V. RACF in a Sysplex

A. Types of Sysplex
B. basic Sysplex
C. Parallel Sysplex
D. RACF and Sysplex
E. RACF communication
F. RACF data sharing
G. RACF data sharing problems
H. the four Sysplex modes
I. the RACF database name table
J. Coupling Facility structures
K. defining Coupling Facility structures
L. in-storage profiles
M. RACLISTed profiles via RACROUTE
N. in-storage profiles and Sysplex
O. introducing RACGLIST
P. RACGLIST and REFRESH
Q. using RACGLIST.

VI. RACF Utilities

A. RACF utilities
B. IRRUT100
C. IRRUT100 examples
D. output (Group), output (User)
E. IRRUT200
F. IRRUT200 example JCL
G. IRRUT200 example output
H. IRRUT400
I. IRRUT400 example JCL
J. IRRADU00
K. IRRADU00 example JCL
L. ICHDSM00
M. ICHDSM00 example JCL

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N. IRRDBU00
O. IRRDBU00 example
P. IRRRID00
Q. IRRRID00 JCL
R. BLKUPD
S. IRRBRW00
T. IRRRID00 JCL
U. SMF unload utility using XML
V. ICETOOL
W. IRRICE package
X. The Audit Reporting tool.

VII. RACF Control Blocks

A. RACF control blocks
B. RACF Communications Vector Table (RCVT)
C. Finding the RCVT
D. Understanding the RCVT
E. Data in the RCVT
F. RCVT vs ICB
G. SAF Vector Table (SAFV)
H. Finding the SAFV
I. Accessor Environment Element (ACEE)
J. Where's my ACEE?
K. ASXBSENV
L. TCBSENV
M. Local Control Block
N. Which ACEE is used?
O. Which ACEE do I need?
P. Caveat ACEE
Q. Finding the active ACEE
R. Security Token
S. Security Token contents
T. Security Token uses
U. ACEE versus Token.

VIII.RACF Macros

A. RACF macros
B. Macro interfaces
C. The MVS router (SAF)
D. RACF macros
E. What do they DO?
F. RACF macros
G. RACHECK, RACINIT, RACLIST, FRACHECK, RACDEF, RACSTAT; RACROUTE additions
H. ICHEINTY
I. The RACROUTE interface
J. RACROUTE MF= styles
K. SAF Parameter list (SAFP)
L. Initialising SAFP
M. SAFP setup
N. SAF Work Area (SAFW)
O. SAFW setup
P. History of REQSTOR & SUBSYS
Q. Using REQSTOR & SUBSYS
R. Setting up REQSTOR and SUBSYS
S. Other RACROUTE information
T. The ACEE - AGAIN!
U. Return codes
V. REQUEST=Verify
W. RACINIT ENVIR= options
X. RACINIT ENVIR=CREATE
Y. Who do you create?
Z. RACINIT STAT=
AA. ENVIR=CREATE ACEE=
BB. Sample user/password=
CC. Sample with PASSCHK=NO
DD. Sample with Token
EE. Create SESSION=
FF. Create with TERMINAL=
GG. POE=; TERMINAL= vs POE=
HH. Sample with POE=
II. What about IP addresses?
JJ. RACINIT ENVIR=DELETE
KK. ENVIR=DELETE ACEE=
LL. Sample DELETE
MM. REQUEST=AUTH
NN. CLASS=
OO. ENTITY/ENTITYX
PP. ENTITY(X) examples
QQ. Sample RACHECK.

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IX. RACF Exits

A. RACF exits
B. RACF exits
C. RACF exits
D. ICHRTX00/01
E. Pre-processing for ICHRTX00
F. ICHRTX00: input, output
G. Pre-exit commonalities
H. Post-exit commonalities
I. Pre- to post- communication
J. Work area pointer
K. From post- to pre-
L. 'Gotchas' for SVC exits
M. Need some input
N. Finding the parameter list
O. Coding RACF exits
P. RACF command exit (IRREVX01)
Q. What's a 'dynamic exit'?
R. RACF IRREVX01 dynamic exit
S. What can you do in the exit?
T. IRREVX01 parameter list
U. The exit command buffer
V. Using the ACEE passed in exit
W. Testing your command exit
X. Sample SETPROG command
Y. Dynamic exit security.

X. Question & Answer Session

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