CICS/TS Command Level Programming

Duration: 5 Days

Audience:

Application Programmers using either Assembler, COBOL or PL/I who require formal training in the exploitation of CICS Command Level programming.

Pre-requisites:

A working knowledge of TSO/ISPF and the programming language to be use to invoke the CICS Commands is required.

Course Objectives

Each delegate will acquire a working knowledge of CICS/TS Commands and will gain a solid foundation in the fundamentals of coding programs and maps to exploit them. Good programming practice is encouraged throughout. The course starts with the basics and furthers learning with 37 hands on assignments.

Course Content

Module 1: Introduction

Brief history
Basic terminology
Online application characteristics.
What is CICS?
Potential CICS Users
CICS and Databases
Command Level Interface
CICS Resources
CICS Transaction vs Task

Module 2: IBM Supplied Transactions

These will be used during the course
CEBR
CECI
CEDA
CEDF & CEDX
CEMT
CMAC

Module 3: Exception Handling

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RESP and RESP2 command fields
How to check RESP values
The HANDLE condition command
The IGNORE condition command

Module 4: Terminal communications

System Network Architecture (SNA) and Virtual Telecommunications Access Method (VTAM)
Open Systems Network – TCP/IP
Modified Data Tag attribute
Checking if data is actually present
PC and 3270 keyboard differences
Attention Identifier (AID) keys

Module 5: Generating a BMS map

Sample Maps
Introduction to BMS Macros
Scoping the map; DFHMSD Macro
Initiate the map; DFHMDI Macro
Define a map field; DFHMDF
Definition of field attributes
Physical vs Symbolic maps
Symbolic map field names
Including the map in the program
Compiling the map

Module 6: Program Structure and Control

Program design consideration
Conversational vs Pseudo-conversational
Impact of recovery
Pseudo-conversational status maintenance
Program control commands; LINK, LOAD, RETURN and XCTL
Sample program, in three languages format
Program preparation

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Module 7: Map Commands

Transmit to terminal; SEND MAP command
Receive from a terminal; RECEIVE MAP command
Transmission management; SEND CONTROL command

Module 8: File Control

Supported data organizations
VSAM differences between CICS and batch
File processing options
Input processing; READ Command
Output processing; WRITE Command
Update processing; DELETE and REWRITE Commands
Removing locks; UNLOCK Command

Module 9: File Browsing

Browsing implications.
Scoping the browse operation; ENDBR and STARTBR Commands
Browse forwards; READNEXT Command
Browse backwards; READPREV Command
Manipulate browsing control; RESETBR Command
Browsing via an Alternate Index

Module 10: Temporary Storage

Temporary storage defined
Types of Temporary Storage; Main, Auxiliary and Coupling Facility
Output to Temporary Storage; WRITEQ TS Command
Input from Temporary Storage; READQ TS Command
Clearing a Temporary Storage item; DELETEQ TS Command

Module 11: Transient Data

Types of Transient Data Queue; Extra-Partition, Intra-Partition Indirect
Trigger levels
Output to Transient Data; WRITEQ TD Command
Input from Transient Data; READQ TD Command
Clearing a Transient Data queue; DELETEQ TD Command

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Module 12: Interval Control

Interval and Time options
The Interval Control Element (ICE)
Request Identifiers
ICE exploitation commands; CANCEL, DELAY and START
Access data attached to a START command; RETRIEVE Command
Obtaining the current data and time; ASKTIME and FORMAT Commands

Module 13: Channels and Container Theory

Channel and Container definitions
COMMAREA restrictions
Defining Channels and Containers
The Channel relationship with Program Control commands
Channel availability scope
Cannot mix COMMAREA and Channel use
Some recommendations for use

Module 14: Channels and Container Commands

Passing a Container; PUT CONTAINER Command
Retrieving a Container; GET CONTAINER Command
Transfer a Container from one Channel to another; MOVE CONTAINER Command
Erase a Container; DELETE CONTAINER Command
Processing multiple Containers; ENDBROWSE, GETNEXT and STARTBROWSE Commands
What if the Channel name is unknown; ASSIGN CHANNEL command

Module 15: CICS / WEB Browser Interface

Resources required; DOCTEMPLATE, TCPIPSERVICE and URIMAP
Design implications; HTML vs BMS map
Maintaining pseudo-conversational status
Create a WEB page; DOCUMENT CREATE Command
Expanding a WEB page; DOCUMENT INSERT Command
Populating HTML Form fields; DOCUMENT SET Command
Transmit a WEB page; WEB SEND
Retrieve HTML Form field data; WEB READ FORMFIELD
Handling multiple Form fields;
An alternative to the DOCUMENT SET approach

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Module 16: CICS / DB2 Interface Overview

CICS / DB2 resources; DB2CONN, DB2ENTRY and DB2TRAN
How thread work
How to prepare a program for execution
Much of the text assumes the delegate already has a fundamental knowledge of SQL
An exercise is provided to reinforce the topics described