

CICS® Command Level Programming

Course No.

2400

Description

This course is designed to provide a basic foundation in on-line application program development within the CICS® environment. The course covers a wide range of CICS® topics, beginning with an overview of the CICS® environment, moving through in-depth instruction in CICS® programming, to the interaction between CICS® and database systems such as DB2 UDB® and IMS DL/I. Additional emphasis is given to developing effective and efficient CICS® applications.

Audience

Application developers who need to develop online application programs that use the CICS® Command Level facility.

Prerequisites

Students should have experience as application developers of batch systems. Since the course includes numerous programming workshops, students should be proficient in COBOL coding, and should be familiar with compiling and testing application programs.

Objectives

- Become familiar with the facilities and characteristics of the CICS environment.
- Experience the differences in programming of an online application.
- Discuss the effective design of a CICS program
- Understand the relationship between the application program and the CICS® environment, through the use of the Command Level Interface.
- Learn and practice the invocation of CICS® services in application programs.
- Explore advanced topics, such as DB2 UDB® and IMS DL/I database access and testing tools.

Major Topics

- CICS® Facilities and Functions Overview
- Programming Considerations
- Command Level Interface
- Programming Services
- Additional Services
- Addressability Considerations
- DL/I Interface
- DB2™ Interface
- Additional Topics

Duration

5 days



Course Contents

1. CICS® Facilities and Functions

- Operating Environment
- Characteristics of Online Systems
- CICS® Components and Characteristics
- CICS® Interfaces
- CICS® Control Functions
- CICS® Application Functions
- Task Management
- Storage Management
- Program Management
- Interval Management
- Terminal Management
- File Management
- Temporary Storage Management
- Transient Data Management
- Journal Management
- CICS®-Supplied Transactions
- Dump Management
- Recovery
- Basic Mapping Support
- Storage Areas
- Transaction Flow
- Transaction Execution

2. Programming Considerations

- System Tables
- Program Control Table
- Processing Program Table
- File Control Table
- Terminal Control Table
- Sign-On Table
- Other CICS® Tables
- CICS® Naming Conventions
- COBOL Language Restrictions
- Program Design (Quasi-Reentrant and Pseudo-Conversational)
- Passing Data Between Programs

3. Command Level Interface

- Command Translator
- Command Format
- Program Preparation
- Program Translation
- Program Execution

- Execute Interface Block
- Exceptional Conditions
- Exceptional Condition Command Format
- Exceptional Condition Handling

4. Program Control

- Control Commands
- Program Levels
- Command Format
- Sample LINK and RETURN
- Sample XCTL, and RETURN with TRANSID

5. Terminal Control

- Functions
- Command Format
- Sample RECEIVE and SEND
- Task Scheduling Based on Data Transmission
- Effect of Input Operations
- Sample AID Handling
- Sample EIBAID Evaluation

6. File Control

- Functions
- Services Provided
- READ and WRITE Command Format
- REWRITE, DELETE, and UNLOCK Command Format
- Browse Command Format
- Error Handling with RESP
- Error Handling with HANDLE CONDITION
- Transaction Deadlock
- Purpose of program Control Commands

7. Basic Mapping Support

- Advantages of BMS
- BMS Interfaces
- Batch Map and DSECT Definition
- Flow of Online BMS Input processing
- Flow of Online BMS Output Processing
- Structure of Mapset Definition
- Map Definition Format
- Map Field Definition Format

8. Additional Services

- Temporary Storage
- Transient Data
- Journal Control



9. Addressability Considerations

- CICS® Transaction Work Areas
- Commonly Used (CWA, TWA, TCTUA)
- Obtaining Base Addresses of Work Areas
- Addressing CICS® TWA-OS/VS COBOL
- Addressing CICS® TWA-VS COBOL II
- Addressing Areas - OS/VS COBOL
- Addressing Areas - VS COBOL II
- Obtaining Other Transaction Information

10. DL/I Interface

- DL/I Definitions
- Request for DL/I Services - CALL Method
- CALL method - Program Logical Level
- User Interface Block
- DL/I Addressability and Sequence of Events
- CALL Formats
- CALL Method - Sample Program
- EXEC DLI
- DLI Interface Block
- EXEC DLI Command Formats
- EXEC DLI OPTIONS

11. DB2™ Interface

- Features
- Interface Overview
- Program Preparation
- Program Preparation Components
- Program Considerations
 - Data Areas
 - Restrictions
 - Host Variables
 - Retrieve Single
 - Retrieve Multiple
 - Other SQL
- Program Testing and Debugging

12. Additional Topics

- Multiple Region Operation
- Obtaining Date and Time Information
- Execution Diagnostic Facility
- EDF: (Points of Interception, Information Displays, Available Interaction)
- Command Level Interpreter
- CICS® Transaction Dumps

