Enterprise COBOL Unicode and XML Support (2 Day)

Benefits

Students who complete this course will be able to use the Unicode and XML processing capabilities of the IBM Enterprise COBOL for z/OS and OS/390 compiler. This enables students to build routines to convert Web-originated XML transactions to classic COBOL data structure based transactions and back.

Audience

Experienced z/OS or OS/390 COBOL application programmers. Students should already be familiar with the LE COBOL compiler family and its capabilities.

Prerequisites

At the very least, the student entering this course should have a strong programming background in COBOL. The installation must be using the Enterprise COBOL compiler and have Unicode support services activated.

Major Topics Include

- Introduction to Unicode
- National data type
- Intrinsic functions: DISPLAY-OF, NATIONAL-OF
- Introduction to XML
- The XML PARSE statement
- The XML Special registers
- XML Events
- Coding processing procedures
- Extracting character string fields while parsing
- Extracting numeric fields while parsing
- Handling exceptions while parsing
- The XML GENERATE statement
- Handling attributes and namespaces
- The Enterprise COBOL V4R1 enhancements to XML work
- XML PARSE with validation

Exercises

There are ten hands-on exercises.

Course Objectives

On successful completion of this course, the student, with the aid of the appropriate reference materials, should be able to:

1. Describe the attributes of Unicode, and explain the difference between the three formats of Unicode data (UTF-8,UTF-16, UTF-32)

2. Code Unicode data items, Unicode literals, and Unicode hex literals in COBOL programs

3. Use intrinsic functions to convert between code pages including EBCDIC, ASCII, and Unicode

4. Describe the basic rules for XML document structure

5. Invoke the IBM high speed XML parser from a COBOL program to extract data from an XML document into a COBOL record structure

6. Use the XML GENERATE statement to create XML data from a COBOL data structure

7. Use Enterprise COBOL 4.1 or later facilities to work with namespaces and attributes, and to parse XML documents a record or a segment at a time

8. Use Enterprise COBOL 4.2 or later to validate an XML document against a schema stored in an external file or an internal data item.

Enterprise COBOL Unicode and XML Support - Topical Outline

COBOL Support For Unicode
    What Is Unicode?
    Unicode Support in Enterprise COBOL
    When Will You Need To Use Unicode Support?
    Things To Watch Out For
    <u>Computer Exercise</u>: Set Up and Handling Unicode

COBOL Support for XML: The Set Up
    What is XML?
    Processing XML Documents
    Preparing to Use the COBOL XML Parser
    Computer Exercise: Prepare Data for Parsing

COBOL Support for XML: XML PARSE
    The XML PARSE Statement
    The XML Special Registers
    The XML Events
    Coding the Processing Procedure
    Computer Exercise: Basic XML Parsing

COBOL Support for XML: Processing Procedure Considerations
    What To Do In A Processing Procedure
    Extracting Data During Parsing
    Computer Exercise: Extracting Data During Parsing

    Extracting Data During Parsing, continued
    Computer Exercise: Extracting Multiple Data Fields During Parsing

    Extracting Numeric Data During Parsing
    Early Termination of Parse
    Exceptions in Parsing
    Restrictions in Processing Procedures
    Computer Exercise: Extracting Numeric Data During Parsing

Parsing Pure Passed XML

COBOL XML Support: The XML GENERATE Statement
    The "Wrapper" paradigm
    The XML GENERATE statement
    XML GENERATE and exceptions
    Computer Exercise: Creating XML Output

Attributes, Namespaces, and Enterprise COBOL V4 Enhancements
    COBOL, XML, and Attributes
    COBOL, XML, and Namespaces
    Enterprise COBOL V4 Enhancements
        Compiler option XMLPARSE
        Namespace support
        Attributes in generation
        Record level processing
        XML header generation
    Computer Exercise: Using Some of the New Features

XMLPARSE(XMLSS) Differences
        Processing Differences for XML PARSE
        XML PARSE migration issues
        Processing Differences for XML GENERATE
        Computer Exercise: Code clean up

Enterprise COBOL V4R2 Enhancements
    Introduction to XML Schemas
    Preparing XML schemas for PARSE
    XML PARSE ... VALIDATING
    Computer Exercise: Schemas and Validation