

XML Parsing using C# and .NET

Course No.

9441

Description

This two-day course teaches the different types of XML parsing available in .NET. The course starts off with an overview of the .NET Framework and XML classes found in the System namespace. It then dives into the different parsing methodologies available from Microsoft.

We first study the .NET Framework classes that Microsoft created to efficiently traverse XML streams. We will study the XMLReader classes and the many properties and methods available to create fast parsing applications. We will detail each of the Reader classes and overview the differences between each. Then we will look at the XMLTextWriter class and the different methods available for creating an XML stream and sending it to another application. Next we study the widely used Document Object Model (DOM) specified by the World Wide Web Consortium. Upon completion students will be fluent in the .NET System.Xml DOM classes and the various ways to retrieve, modify, and delete XML data.

Upon completion of this course the student will easily program XML application in .NET and understand which parsing method to apply for the problem domain.

Prerequisites

Introduction to XML, or similar experience. Ability to read and to write well-formed XML. Ability to read a DTD not strictly required, but preferred. A working knowledge of programming C#, such as from Keane courses 9410, Object-Oriented Programming in C# or 9411, C# Essentials.

Objectives

- Understand the purpose of the .NET Framework XML classes.
- Identify the .NET classes involved in parsing and creating XML documents.
- Handle XML parsing exceptions.
- Parse and validate XML data streams using XMLReader classes
- Use the XMLTextWriter class to create XML data streams.
- Modify, create and delete information in an XML document using the DOM .NET classes.

System Requirements

Software for this course can be installed and run on Windows systems only. Required tools are Microsoft Visual Studio .NET 2003.

A good minimal hardware profile for this course would have a Pentium 500-MHz or equivalent CPU, 256 MB of RAM, and at least 2 GB of free disk space for tools installation and courseware

Duration

2 days

Course Contents

1. .NET Framework XML Overview

- Pure XML (How is XML used in the .NET Framework)
- Parsing XML
- Core .NET Namespaces
- .NET XML Classes
- The Tradeoffs of Pull/Push and Cached/Non-cached Parsers
- How Does the MSXML fit in .NET
- What Does the W3C say
- What Does the W3C not say
- .NET XmlReader and XmlWriter features
- .NET DOM Parser Features

2. Reading XML Streams in .NET

- XML Document Streams
- The XmlTextReader Class
- Accessing Node Properties with the .NET XML Classes
- Traversing the XML Document
- Catching XmlExceptions
- Accessing Attribute Values
- The XmlNodeReader and XmlNodeValidatingReader Classes

3. Writing XML Streams in .NET

- The XmlWriter Class
- Four Steps for Creating the XML Document
- Common Settings for XML Document Streams
- The XmlTextWriter WriteXXX Methods
- Writing Elements
- Writing Attributes
- Writing Namespaces
- Serializing Objects into XML

4. The Document Object Model in .NET

- Origins of the DOM
- DOM Levels
- DOM2 Structure
- The XmlDocument Class
- DOM Tree Model
- DOM Interfaces
- XmlDocument, XmlNode and XmlNodeList classes
- XmlElement and XmlText Interfaces
- Finding Elements By Name
- Walking the Child List
- The XmlAttribute Interface
- Namespaces and the DOM
- Error Handling
- The ProcessingInstruction Interface
- The DOM and the XML InfoSet
- Object Serialization with the DOM

5. Manipulating XML Information with the .NET DOM

- Modifying Documents
- Modifying Elements
- Modifying Attributes
- Managing Children
- Cloning
- Splitting Text and Normalizing
- Creating New Documents
- Object Persistence with the DOM
- Adapting Object Models to the DOM

Appendix A. Learning Resources

Appendix B. Core XML: Learning Resources

Appendix C. Core XML: Quick Reference – XML and DTD Grammar

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