WCF Programming for Experienced C# Programmers

Duration: 3 Days *(Face-to-Face & Remote-Live)*, or 21 Hours *(On-Demand)*

Price: $1695 *(Face-to-Face & Remote-Live)*, or $895 *(On-Demand)*

Discounts: We offer multiple discount options. Click here for more information.

Delivery Options: Attend face-to-face in the classroom, remote-live or via on-demand training.

Description

This course provides students with hands on experience using Visual Studio to create service-oriented applications using Windows Communication Foundation (WCF) and C#. Students learn how to leverage the power of the .NET Framework to build Web Service applications that interoperate with consumer applications including other platforms and technologies. Students will learn how to configure addresses, bindings, and service and data contracts as well as how to use various techniques for developing endpoints to allow communication between consumer applications and the web services provider.

The course includes coverage of instance management, fault handling, and security. Students will learn how to use the WCF Routing Service for load balancing, content-based routing, and protocol bridging.

Comprehensive labs and exercises provide the students with experience creating both content server and consumer applications.

Prerequisites

Prior experience with C# is required.

Course Overview

Introduction to WCF

- WCF Web Services Architecture

Service Addresses

- Address Types

- Addresses, Bindings and Contracts
- WCF Service Libraries
- WCF Test Host and Test Client
- `ChannelFactory` Class
- Configuring WCF Clients
- Standard Endpoints
    - Endpoint Address
    - Base Address
    - MEX (Message Exchange) Address
- Metadata Exchange
- Address Formats

Selecting Binding Options

- Binding Selection
- HTTP Bindings
- TCP and Named Pipe Bindings
- MSMQ Binding
- `BasicHttpBinding` Class

Managing a Service Instance

- Configuring Behaviors
- Service Instance Models
    - Per-Call
    - Per-Session
    - Singleton
- Threading Considerations
- Consuming WCF Application Services with .NET Applications
- Consuming WCF Application Services on foreign platforms

Defining Service Contracts

- Service and Operation Contracts
- Creating Contracts at the Class and Interface Level
- Using `ServiceContractAttribute`
- Types of Service Contracts
    - Oneway
    - Request-Reply
    - Duplex
- Callbacks
- Asynchronous Proxies
- WSDL Files
- Contract Inheritance and Overloading
- Implementing Message Exchange Patterns
- Versioning

Defining Data Contracts

- Using `DataContractAttribute`
- Mapping Data to Schema
- Returning Arrays
- Returning Generic Collections
- Data Serialization
- Versioning

Endpoints

- Endpoints Explained
- Working with Endpoints
- Configuring Endpoints
- Using Multiple Endpoints

Fault Handling

- FaultException class
- FaultCode class
- FaultContract class
- Client Exception Handling
- Including Exception Details

Securing WCF Applications

- Security Issues with Services

WCF Routing Configuration

- WCF Routing Service

- Types of Security
  - Transfer Security
  - Transport Security
  - Message Security
- Configuring Security on Client and Server
- Managing Certificates
- Configuring Client Certificates
- Sending Credentials
- Hosting the Service
- Consuming the Service
- Service Contract and Implementation
- Routing Contracts
- Message Filters
- Common Routing Scenarios
  - Load Balancing
  - Content Based Routing
  - Service Partitioning
  - Protocol Bridging

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