WCF Programming for Experienced C# Programmers

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

Price: CDN$2,275 *(Face-to-Face & Remote-Live)*, or CDN$1,995 *(On-Demand)*

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

Delivery Options: Attend face-to-face in the classroom or remote-live attendance.

Students Will Learn

- Service-oriented architecture
- Web Services implementation
- Binding options
- Defining service contracts
- Defining data contracts
- WCF security options
- Hosting WCF services
- Choosing WCF bindings
- Managing service instances
- Fault handling
- WCF routing control

Course 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.

This course provides thorough coverage of the use of **Windows Communication Foundation** for service-oriented applications. Students requiring additional coverage of **ASP.NET Web Forms**, **Windows Forms** or **Windows Presentation Foundation** should contact HOTT or refer to HOTT's complete course listing for additional training courses.

Students unfamiliar with the C# programming language should register for the 5-day WCF Programming Using C# course instead.

Course Prerequisites

Prior experience with C# is required.

Course Overview

Introduction to WCF

- WCF Web Services Architecture
- Addresses, Bindings and Contracts
- WCF Service Libraries
- WCF Test Host and Test Client
- `ChannelFactory` Class
- Configuring WCF Clients
- Standard Endpoints

Service Addresses

- Address Types
  - 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

Fault Handling

- FaultException class
- FaultCode class
- FaultContract class

Using Multiple Endpoints

Client Exception Handling
- Including Exception Details

Securing WCF Applications

- Security Issues with Services
- Types of Security
  - Transfer Security
  - Transport Security
  - Message Security
- Configuring Security on Client and Server
- Managing Certificates
- Configuring Client Certificates
- Sending Credentials

WCF Routing Configuration

- WCF Routing Service
- 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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