

.NET Web Services: Windows Communication Framework

Web services extend the World Wide Web infrastructure to provide the means for software to connect to other software applications. Applications access Web services via ubiquitous Web protocols and data formats such as HTTP, XML, and SOAP with no need to worry about how each Web service is implemented. Web services combine the best aspects of component-based development and the Web, and are a cornerstone of the Microsoft .NET programming model. The latest technology suite for developing web services in .NET is the Windows Communication Framework (WCF). This course will cover the foundation of Web services and introduce you to WCF programming using hands-on approach. Topics covered include service oriented architecture, designing contracts, hosting services, security, and reliability.

Who should take this course?

The audience for this course is software developers with strong background in C# and familiar with ASP.NET and XML.

Course Objectives

- Explore distributed computing trends.
- Establish the need for Web services.
- Learn Service Oriented Architecture Concepts.
- Implement Services and Clients using Windows communications framework.
- Discuss various Bindings, Contract patterns and their applicability to application scenarios.
- Discuss issues such as reliability, hosting, security, error handling and learn design principles to address these issues in real world Services and Clients.

Course Details

- Length: 24 hours
- Format: Classroom
- Prerequisites: XML Introduction, C# Programming: 2, and C# Programming: 3, or the equivalent knowledge.

The above prerequisites are considered to be the basic skills and knowledge needed prior to taking this class. Instructors will assume your readiness for the class materials and will NOT use class time to discuss prerequisite materials.



Course Contents

Introduction

- Distributed computing
- Why Web services?
- Services Oriented Architecture (SOA)
- Programming Models
- What is Windows Communication Framework?
- Simple Hello World Service

Fundamental WCF Concepts

- Messages – serialization, deserialization
- Services
- Service Contracts
- Data contracts
- Hosting
- Address
- Endpoints
- Binding
- Metadata
- Channel
- Behavior
- Proxy

WCF Architecture



Course Contents, continued

Contracts

- Messages and protocols
- Service description
- Serialization of messages
- Service Contracts, Data Contracts, Message Contracts
- Service Description, WSDL, Proxy Generation from WSDL

Bindings

- Declarative Bindings
- Programmatic Bindings
- Message exchange patterns
- Large Messages

Hosting

- Self Hosting
- Windows Services
- IIS Hosting
- Windows Activation Service

Error Handling

- Exceptions and Fault messages
- Sharing/not sharing service errors with client
- SOAP Faults
- Fault Contracts
- Generating fault messages
- Handling errors in the client
- Debugging



Course Contents, continued

Instancing, Concurrency

- Operations Context
- Instance Models
- Concurrency Control
- Load Balancing

Security

- Authentication
- Authorization
- Confidentiality
- Message Integrity
- Binding Configurations
- Internet and Intranet scenarios

Reliability

- Reliable Sessions
- Transactions
- Queuing