

Programming WCF Web Services for .NET: A Comprehensive Hands-On Introduction - 4 Days

Course 2601 Overview

- You Will Learn How To**
- Create Windows Communication Foundation (WCF) services for .NET 3.x/4
 - Integrate RESTful services into Ajax applications with WCF data services
 - Create WCF Rich Internet Application (RIA) services for Silverlight client applications
 - Harness advanced WCF features for service routing and discovery
 - Orchestrate long-running business processes with WCF Workflow services and Windows Workflow Foundation
 - Deploy services with the Windows Process Activation Service (WAS) and Windows Server AppFabric
- Course Benefits** WCF web services connect isolated data sources to create powerful distributed applications. .NET includes several complementary WCF service frameworks that allow enterprise applications to gain online access to critical business information. In this course, you learn to program WCF web services with C# or Visual Basic that harness each of these frameworks. You gain the knowledge and skills to maximize these technologies for your organization.
- Who Should Attend** Those who want to create WCF web services using .NET. Programming experience at the level of Course 503, "Visual Basic Programming for .NET," or Course 419, "C# Programming," is assumed.
- Hands-On Training** You gain hands-on experience building web services with .NET. Exercises, completed in either C# or Visual Basic, include:
- Coding WCF services and clients
 - Building interoperable and performant WCF services
 - Locating services dynamically with discovery
 - Connecting WPF, Silverlight, ASP.NET and Ajax clients to .NET services
 - Mapping long-running business processes to services with WF
 - Deploying and managing services with Windows Server AppFabric

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Course 2601 Outline

Web Services Overview

Web service architecture

- Dividing responsibilities in n-Tier distributed applications
- Determining service and operation granularity
- Comparing operation- and resource-based services
- Options for serializing data: change set, simple entities, self-tracking entities, data transfer objects

Web service support in .NET

- The spectrum of WCF service toolkits
- WCF
- WCF Data Services
- WCF RIA Services
- Workflow Services

Designing Operation-Oriented Services

Programming WCF services

- Creating the service interface and implementation
- Applying attributes to the service and operations
- Connecting clients with service references
- Hosting WCF services with IIS and Windows services

Configuring WCF services

- Authoring service and client configuration
- Leveraging bindings for interoperability and performance
- Harnessing service and endpoint behaviors
- Simplifying configuration with .NET 4

Constructing Resource-Oriented Services

Services

Syndicating WCF services

- Returning simple XML to clients
- Delivering RSS content feeds from WCF

Leveraging WCF data services

- Mapping HTTP actions into service operations
- Supporting RESTful access to entity framework data
- Partitioning data with projections and query expressions
- Sharing information with the open data protocol (oData)
- Integrating diverse data sources: SharePoint 2010, Azure and Excel 2010

- Accessing WCF data services from .NET and Ajax clients

Developing WCF RIA Services

Simplifying n-Tier service development

- Standardizing service design patterns for Silverlight clients
- Exposing domain logic with LINQ
- Coding a domain service for query and update
- Benefiting from the authentication service

Integrating Silverlight clients

- Enabling rapid application development with the business application template
- Retrieving data efficiently with generated domain contexts
- Validating input consistently with shared code

Leveraging WCF Features

Service routing

- Routing architecture and scenarios
- Protocol bridge
- Service fallback
- Multicast

Service discovery

- Announcing service availability
- Automating dynamic client connection to services

Duplex services

- Bidirectional communication infrastructure
- Controlling duplex channels in client and service code

Delivering Long-Running Services with Workflow

Workflow

Employing Windows Workflow Foundation 4

- Mapping business processes to flowchart workflows
- Designing declarative workflows with XAML
- Exploiting built-in and custom Workflow activities

Workflows as WCF services

- Representing service operations and ReceiveAndSendReply
- Linking client calls with content-based correlation

Customizing workflow behavior

- Ensuring workflow resilience with persistence
- Observing workflow execution with tracking

Deploying WCF Services

Integrating WCF with IIS

- Building WCF deployment packages with Visual Studio
- Benefiting from Windows Process Activation Service (WAS)

Managing services with Windows Server

AppFabric

- Manipulating running workflows
- Monitoring service and workflow operations

Securing Web Services

- Security defaults across the .NET service spectrum
- Transfer vs. message security
- Applying SSL and basic authentication to external services
- Authorizing access to service operations