

# 10 Ways to Build Web Services in .NET WCF Web Services

Chad McCallum  
@ChadEmm



# **Module Outline**

- **Introduction to WCF**
- **Understand WCF Configuration**
- **Understand Service and Operation Contracts**
- **Define and implement a Service Contract and Operation Contracts**
- **Use WCF Test Client to test our Web Service**
- **Add a Service Reference to our Web Service**
- **Call the Web Service through generated proxy classes**
- **Review**

# WCF Web Services

- **Windows Communication Foundation**

- Framework for message-based communication on both client and server
- Supports multiple transports and encodings
- Shipped with .NET 3.0
- Used by several Microsoft server technologies

# WCF Web Services

- **Uses “contracts” to define functionality**
  - Service Contract defines the capabilities of a service
  - Operation Contract defines the arguments and return values of specific operations
  - Data Contract defines the type and format of data sent and received

# WCF Web Services

- **Heavy reliance on configuration**
  - Endpoint – An address where a server can send and receive data
  - Binding – Defines the transport and encoding for an endpoint
  - Behavior - Controls the runtime behavior for a service, endpoint, operation, or client.
    - Influences things like throttling, credentials, error handling, etc.
    - Can be set at a global, service, endpoint, and operation contract level.

# Review - Configuration

- **Windows Communication Foundation relies heavily on configuration**
  - Endpoint – An address where a server can send and receive data
  - Binding – Defines the transport and encoding for an endpoint
  - Behavior - Controls the runtime behavior for a service, endpoint, operation, or client.
    - Influences things like throttling, credentials, error handling, etc.
    - Can be set at a global, service, endpoint, and operation contract level.
- **Web.config is configured to support SOAP over HTTP by default when a WCF Service is added to a project**

# Review - Contracts

- **Contracts are used to define services, operations, and data**
  - [ServiceContract] defines a web service
  - [OperationContract] marks a method accessible from the service endpoints
  - [DataContract] and [DataMember] controls the serialization of complex types
- **WCF handles the creation of the Web Service Definition Language (WSDL) based on Contract attributes**

# Review – WCF Test Client

- **The WCF Test Client Utility can be used to test WCF Services**
  - Works with complex types
  - Displays the sent and received SOAP Envelopes
  - Installed with Visual Studio (2008 and up) under “Program Files (x86)/Microsoft Visual Studio (version)/Common7/IDE/WCFTestClient.exe”



# Review – Service Reference

- **Visual Studio's Add Service Reference utility generates local proxy classes to communicate with WCF Services**
  - Uses the Web Service Definition Language file from the service to generate local interfaces, clients, and transport objects
  - The generated client handles the communication layer, as well as serializing and deserializing SOAP envelopes into CLR types
  - Web service methods can be processed asynchronously by using the corresponding Async implementation