

# Windows Communication Foundation - SOAP

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SOAP - z czym to się je?



# Simple Object Access Protocol

- Protokół komunikacyjny,
- komunikacja pomiędzy Webservice'ami
- wykorzystuje XML,
- WSDL - opis dostępnych metod wraz z parametrami oraz opis formatu przesyłanych danych (obiektów)

# Simple Object Access Protocol

```
POST /InStock HTTP/1.1
Host: www.example.org
Content-Type: application/soap+xml; charset=utf-8
Content-Length: 299
SOAPAction: "http://www.w3.org/2003/05/soap-envelope"
```

```
<?xml version="1.0"?>
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope">
  <soap:Header>
  </soap:Header>
  <soap:Body>
    <m:GetStockPrice xmlns:m="http://www.example.org/stock/Surya">
      <m:StockName>IBM</m:StockName>
    </m:GetStockPrice>
  </soap:Body>
</soap:Envelope>
```





# WCF?!

- Windows Communication Foundation
- framework unifikujący wszystkie dotychczasowe technologie Microsoft służące do komunikacji - wikipedia
- współpraca z istniejącymi Webservice'ami
- Nastawienie na wydajność
- Serializacja i deserializacja odbywa się poza sceną

Search Solution Explorer (Ctrl+,)

 Solution 'BankWcfSoapExample' (1 project)

 **LocalBankService**

- ▶  Properties
- ▶  References
- ▶  App.config
- ▶  Program.cs

## Installed

Sort by: Default



Search Installed Templates (Ctrl+E)



## Visual C# Items

Code

Data

General

Web

Windows Forms

WPF

SQL Server

Workflow

## Online



Settings File

Visual C# Items



Style Sheet

Visual C# Items



Text File

Visual C# Items



Text Template

Visual C# Items



TypeScript File

Visual C# Items



WCF Service

Visual C# Items



Windows Script Host

Visual C# Items



Windows Service

Visual C# Items



XML File

Visual C# Items

**Type:** Visual C# Items

A class for creating a WCF service

[Click here to go online and find templates.](#)

Name:

LocalBankService.cs

Add

Cancel

```
// NOTE: You can use the "Rename" command  
[ServiceContract]  
// Service  
public interface ILocalBankService  
{  
    [OperationContract]  
    // Get Bank Name  
    string GetBankName();  
}
```



BankWcfSoapExample - Microsoft Visual Studio (Administrator)

File Edit View Project Build Debug Team XML Tools Architecture Test Analyze Window Help

Debug Any CPU LocalBankClient Start

App.config\* LocalBankService.cs

```
7 <behaviors>
8 <serviceBehaviors>
9 <behavior name="">
10 <serviceMetadata httpGetEnabled="true" httpsGetEnabled="true" />
11 <serviceDebug includeExceptionDetailInFaults="false" />
12 </behavior>
13 </serviceBehaviors>
14 </behaviors>
15 <!--<services>
16 <service name="LocalBankService.LocalBankService">
17 <endpoint address="" binding="basicHttpBinding" contract="LocalBankService.ILocalBankService">
18 <identity>
19 <dns value="localhost" />
20 </identity>
21 </endpoint>
22 <endpoint address="mex" binding="mexHttpBinding" contract="IMetadataExchange" />
23 <host>
24 <baseAddresses>
25 <add baseAddress="http://localhost:8733/Design Time Addresses/LocalBankService/LocalBankService/" />
26 </baseAddresses>
27 </host>
28 </service>
29 </services-->
30 </system.serviceModel>
31 </configuration>
```

133 %

Error List

Entire Solution 0 Errors 0 Warnings 0 Messages Build + IntelliSense Search Error List

Code	Description	Project	File	Line
------	-------------	---------	------	------

Ready

Solution Explorer

Search Solution Explorer (Ctrl+):

Solution 'BankWcfSoapExample' (2 projects)

- LocalBankClient
  - Properties
  - References
  - Service References
  - App.config
  - Program.cs
- LocalBankService
  - Properties
  - References
  - App.config
  - ILocalBankService.cs
  - LocalBankService.cs
  - Program.cs

Properties

XML Document

Encoding Unicode (UTF-8)

Output

Schemas "C:\Program Files (x86)\Micros

Stylesheet

Encoding

Character encoding of the document.

Ln 29 Col 19 Ch 19 INS

## Configuration

- Services
- + Client
- + Bindings
- + Standard Endpoints
- + Diagnostics
- + Advanced

## Tasks

- Create a New Service...
- Create a New Client...

## Services

Summary

[Create a New Service...](#)

No service is defined.

## What is the service type of your service?

A Service Type is the name of the service. It is usually the name of the class that implements your service in code. You can use "Browse..." to select the service type from your service assembly.

Specify the service type for the service:

Service type:

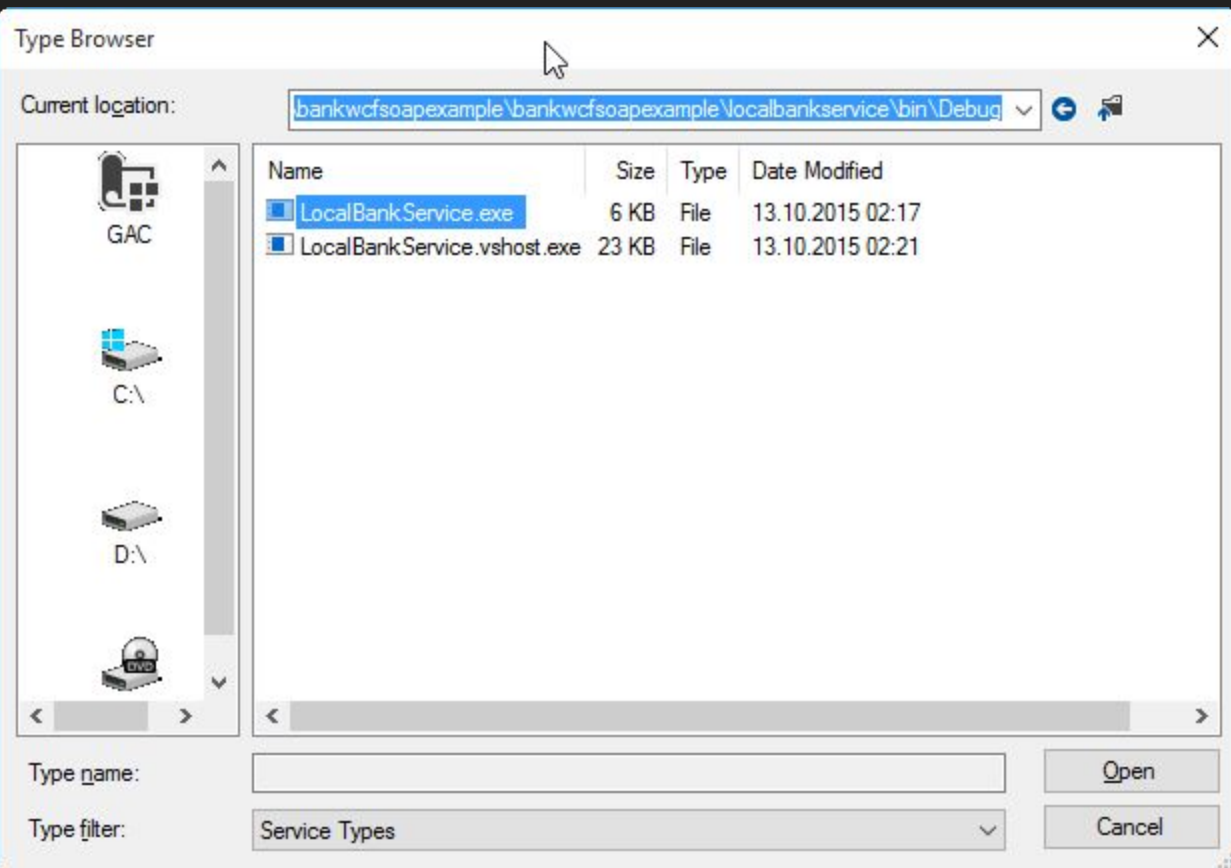
Browse...

< Previous

Next >

Finish

Cancel



Type Browser



Current location:

d:\ramzes\documents\dev\sample-example\bankwcfsoapexample\bankwcf



GAC



C:\



D:\



DVD

Type Name

LocalBankService.LocalBankService



Type name:

LocalBankService.LocalBankService

Open

Type filter:

Service Types

Cancel

## What is the service type of your service?

A Service Type is the name of the service. It is usually the name of the class that implements your service in code. You can use "Browse..." to select the service type from your service assembly.

Specify the service type for the service:

Service type:

[Browse...](#)

< Previous

Next >

Finish

Cancel

## What service contract are you using?

A Contract is a collection of operations that specifies what the endpoint communicates to the outside world. It is usually the name of the interface that you define in code. You can use "Browse..." to select the contract from your service assembly.

Specify the service contract for the service:

Contract:

LocalBankService.ILocalBankService ▾

Browse...

< Previous

Next >

Finish

Cancel

**What communication mode is your service using?**

☐ TCP

TCP based communication. Use this mode for services that require fast communication on the network.

☒ HTTP

HTTP based communication. Use this mode for services that require interop based on the web service standards.

☐ Named Pipes

Use this mode for fast on-machine communication.

☐ MSMQ

Queued communication on-machine and across the network. This communication mode requires MSMQ to be installed.

☐ Peer To Peer

Create a node in a peer to peer network.

< Previous

Next >

Finish

Cancel



## What method of interoperability do you want to use?

☒ Basic Web Services interoperability

This option provides interoperability with Web services that implement the WS-I Basic Profile and Basic Security Profile specifications. Choose this option if you are communicating with ASP.NET Web services, or other Web services that conform to the WS-I Basic Profile and Basic Security Profile.

☐ Advanced Web Services interoperability

This option provides interoperability with Web Services that support distributed transactions and secure, reliable sessions. Choose this option if you are communicating with Windows Communication Foundation (WCF) or other Web Services that conform to WS-\* specifications.

☐ Simplex communication

The service contract uses one-way communication.

☐ Duplex communication

This option enables the service contract to both send and receive messages.

< Previous

Next >

Finish

Cancel

## What is the address of your endpoint?

Specify the address for the endpoint:

Address:

< Previous

Next >

Finish

Cancel

**The wizard is ready to create a service configuration.**

A new service configuration with one endpoint will be created.

Service Type: LocalBankService.LocalBankService

Endpoint Settings:

Contract: LocalBankService.ILocalBankService

Binding: basicHttpBinding

Binding Configuration: (Default)

Endpoint Address: http://localhost:1234/LocalBankService

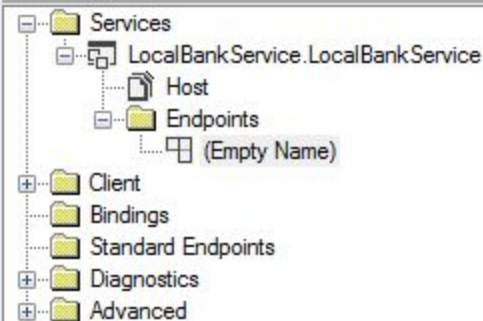
< Previous

Next >

Finish

Cancel

## Configuration



## Tasks

[Delete Endpoint](#)[Create a New Service...](#)[Create a New Client...](#)

## Service Endpoint

General Identity Headers

## ▼ (Configuration)

**Name** LocalBankServiceEndpoint

## ▼ Endpoint Properties

Address	http://localhost:1234/LocalBankService
BehaviorConfiguration	
Binding	basicHttpBinding
BindingConfiguration	
BindingName	
BindingNamespace	
Contract	LocalBankService.ILocalBankService
EndpointConfiguration	
IsSystemEndpoint	False
Kind	
ListenUri	
ListenUriMode	Explicit

**Name**

Optional string attribute. This attribute uniquely identifies an endpoint for a given contract. You can define multiple endpoints for a given contract type. Each definition must be differ...

BankWcfSoapExample - Microsoft Visual Studio (Administrator)

File Edit View Project Build Debug Team XML Tools Architecture Test Analyze Window Help

Debug Any CPU LocalBankClient Start

App.config LocalBankService.cs

```
1 <?xml version="1.0" encoding="utf-8" ?>
2 <configuration>
3   <startup>
4     <supportedRuntime version="v4.0" sku=".NETFramework,Version=v4.5.2" />
5   </startup>
6   <system.serviceModel>
7     <services>
8       <service name="LocalBankService.LocalBankService">
9         <endpoint address="http://localhost:1234/LocalBankService" binding="basicHttpBinding"
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26         </identity>
27       </endpoint>
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31 </configuration>
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133%

Error List

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Properties

XML Document

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Output

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Character encoding of the document.

Ln 7 Col 1 Ch 1 INS

BankWcfSoapExample - Microsoft Visual Studio (Administrator)

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Debug Any CPU LocalBankClient Start

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Properties

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Ln 11 Col 1 Ch 1 INS

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- LocalBankService
  - Properties
  - References
  - App.config
  - ILocalBankService.cs
  - LocalBankService.cs
  - Program.cs

Properties

XML Document

Encoding Unicode (UTF-8)

Output

Schemas "C:\Program Files (x86)\Micros

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Encoding

Character encoding of the document.

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## LocalBankService

```
static void Main(string[] args)
{
    using (ServiceHost serviceHost = new ServiceHost(typeof(LocalBankService)))
    {
        serviceHost.Open();
        Console.WriteLine("Service is open...");

        //

        Console.WriteLine("Press any key to exit...");
        Console.ReadKey();
    }
}
```

Service is open...  
Press any key to exit...

## LocalBankService Usługa

Utworzono usługę.

Aby ją przetestować, należy utworzyć klienta i użyć go do wywołania tej usługi. Można to zrobić, korzystając

```
svcutil.exe http://localhost:1234/LocalBankService?wsdl
```

Dostęp do opisu usługi można także uzyskać jak do pojedynczego pliku:

```
http://localhost:1234/LocalBankService?singleWsd1
```

Spowoduje to wygenerowanie pliku konfiguracji i pliku kodu zawierającego klasę klienta. Dodaj oba pliki do przykład:

C#

```
class Test
{
    static void Main()
    {
        LocalBankServiceClient client = new LocalBankServiceClient();

        // Użyj zmiennej „client” do wywoływania operacji dla usługi.

        // Zawsze zamykaj klienta.
        client.Close();
    }
}
```

Recent

.NET Framework 4.5.2

Sort by: Default



Search Installed Templates (Ctrl+E)



Installed

Visual C#

Windows

Web

Android

Cloud

Extensibility

iOS

LightSwitch

Office/SharePoint

Silverlight

Test

WCF

Workflow

Other Languages

Other Project Types

Modeling Projects

Online



Windows Forms Application

Visual C#



WPF Application

Visual C#



Console Application

Visual C#



ASP.NET Web Application

Visual C#



Shared Project

Visual C#



Class Library (Package)

Visual C#



Console Application (Package)

Visual C#



Class Library

Visual C#



Class Library (Portable)

Visual C#



Silverlight Application

Visual C#



Silverlight Class Library

Visual C#



WCF Service Application

Visual C#

**Type:** Visual C#

A project for creating a command-line application

[Click here to go online and find templates.](#)

Name:

LocalBankClient

Location:

D:\Ramzes\Documents\Dev\Sample-Example\BankWcfSoapExample\BankWcfSoapExample

Browse...

OK

Cancel

The screenshot shows the 'Project' menu in Visual Studio. The 'Add' option is selected, which has opened a submenu. The submenu contains the following items:

- New Item... (Ctrl+Shift+A)
- Existing Item... (Shift+Alt+A)
- New Folder
- Azure API App Client...
- Reference...
- Web Reference...
- Service Reference...** (This item is highlighted with a dark background)
- Connected Service...
- Analyzer...
- Windows Form...
- User Control...
- Component...
- Class... (Shift+Alt+C)

The 'Service Reference...' option is the one being demonstrated in the tutorial.

# Add Service Reference



To see a list of available services on a specific server, enter a service URL and click Go. To browse for available services, click Discover.

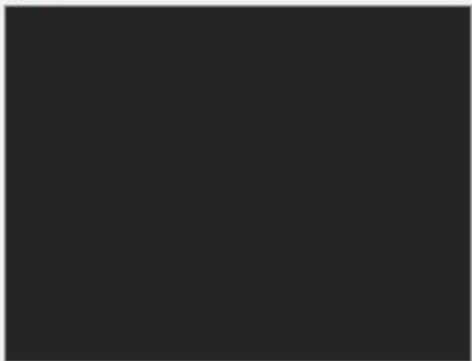
Address:

Go

Discover



Services:



Operations:

--	--

Namespace:

ServiceReference1

Advanced...

OK

Cancel

## Add Service Reference



To see a list of available services on a specific server, enter a service URL and click Go. To browse for available services, click Discover.

Address:

`http://localhost:1234/LocalBankService`

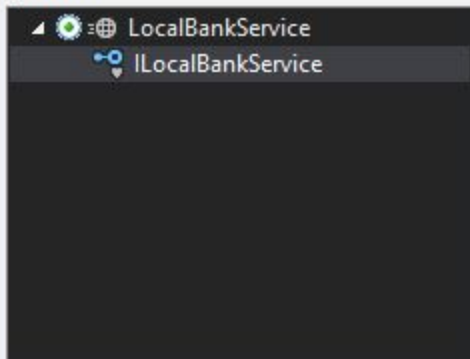


Go

Discover



Services:



Operations:

GetBankName



1 service(s) found at address 'http://localhost:1234/LocalBankService'.

Namespace:

ServiceReference1

Advanced...

OK

Cancel

## Add Service Reference



To see a list of available services on a specific server, enter a service URL and click Go. To browse for available services, click Discover.

Address:

`http://localhost:1234/LocalBankService`



Go

Discover



Services:

LocalBankService  
ILocalBankService

Operations:

GetBankName

1 service(s) found at address 'http://localhost:1234/LocalBankService'.

Namespace:

LocalBankServiceReference

Advanced...

OK

Cancel

## LocalBankServiceClient

```
static void Main(string[] args)
{
    using (LocalBankServiceClient client =
        new LocalBankServiceClient("LocalBankServiceEndpoint"))
    {
        while (true)
        {
            if (Console.ReadLine().Equals("exit"))
                break;

            var name = client.GetBankName();
            Console.WriteLine(name);
        }
    }
}
```



# Exceptions (WebService)

```
public string GetBankName()
{
    throw new FaultException("AK#106068");
    throw new FaultException(
        new FaultReason("Reason"),
        new FaultCode("SomeCode"));
    Log();
    //OperationContext context = OperationContext.Current;
    return "106068 AK-Bank";
}
```

# Exceptions (Client)

```
Itry
{
    var name = client.GetBankName();
    Console.WriteLine(name);
}
catch (FaultException e)
{
    Console.WriteLine(e.Message);
}
```

# Exceptions (Advanced Error Handling)

```
[DataContract]
```

```
1 reference
```

```
public class DataAccessFault
```

```
{
```

```
    [DataMember]
```

```
    0 references
```

```
    public string AdditionalDetails { get; set; }
```

```
}
```

# Exceptions (Advanced Error Handling)

```
[OperationContract]
```

```
[FaultContract(typeof(DataAccessFault))]
```

1 reference | RamzesBlog, 1 day ago | 1 author, 1 change

```
string GetBankName();
```

# Exceptions (Advanced Error Handling)

```
throw new FaultException<DataAccessFault>(fault)
```

[www.karalus.eu/bsr](http://www.karalus.eu/bsr)

<https://github.com/RamzesBlog/WcfSoapServiceExample>