.NET Example

SystemAPI .NET Tool is a program written in C# allowing developers to manage VoipNow accounts and view information about calls.

How To Install It

System Requirements

In order to be able to use the SystemAPI .NET Tool, you need a system with:

- Microsoft Visual Studio 2010
- WSCF.blue (Web Services Contract First) add-in for Microsoft Visual Studio 2010. Download the version 1.0.10, extract the archive, and run the msi installer.

Setup

STEP 1: Please download the files from our GitHub repository:

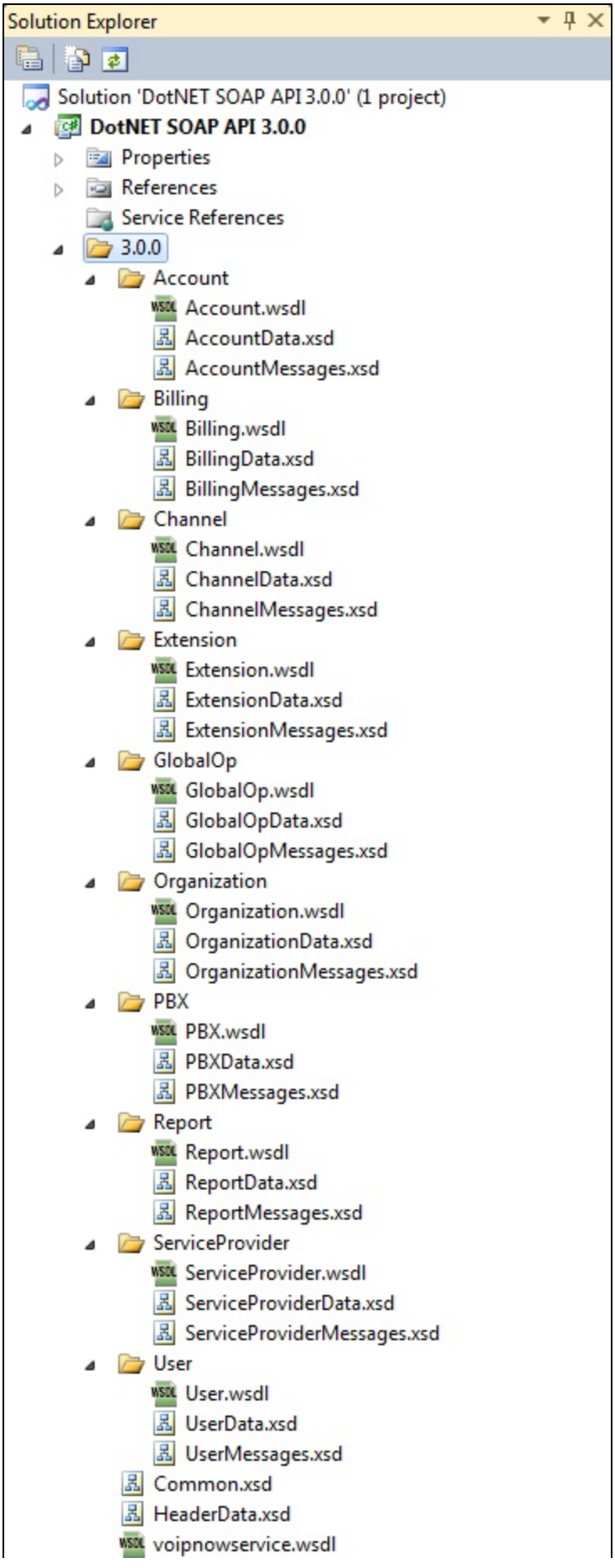
```
git clone https://github.com/4psa/systemapi-example-net.git
```

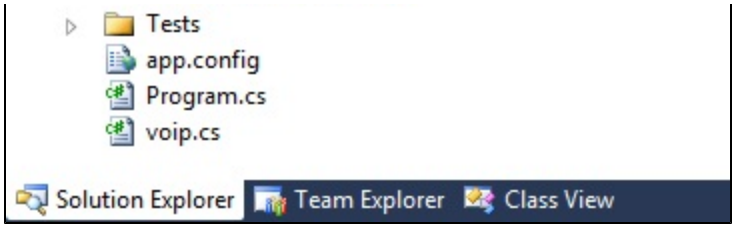
STEP 2: Start Visual Studio 2010 and create a new Visual C# Console Application project.

STEP 3: Create a directory within your project and place the VoipNow schemes in it as you can see below.

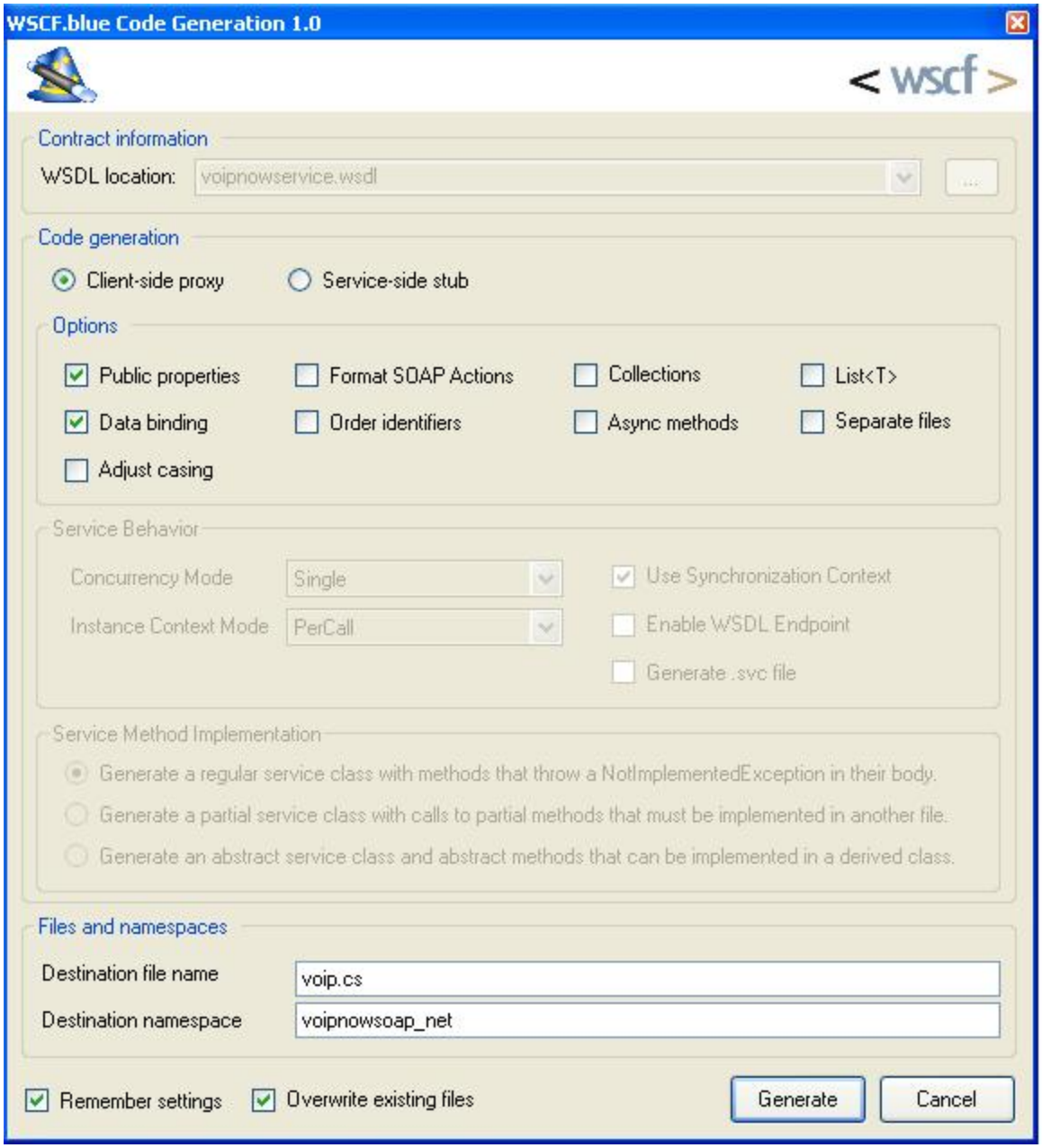
You can find the schemas in your VoipNow installation server at this location:

```
/usr/local/voipnow/admin/htdocs/soap2/schema/latest/
```


Solution Explorer
Solution 'DotNET SOAP API 3.0.0' (1 project)
DotNET SOAP API 3.0.0
Properties
References
Service References
3.0.0
Account
Account.wsdl
AccountData.xsd
AccountMessages.xsd
Billing
Billing.wsdl
BillingData.xsd
BillingMessages.xsd
Channel
Channel.wsdl
ChannelData.xsd
ChannelMessages.xsd
Extension
Extension.wsdl
ExtensionData.xsd
ExtensionMessages.xsd
GlobalOp
GlobalOp.wsdl
GlobalOpData.xsd
GlobalOpMessages.xsd
Organization
Organization.wsdl
OrganizationData.xsd
OrganizationMessages.xsd
PBX
PBX.wsdl
PBXData.xsd
PBXMessages.xsd
Report
Report.wsdl
ReportData.xsd
ReportMessages.xsd
ServiceProvider
ServiceProvider.wsdl
ServiceProviderData.xsd
ServiceProviderMessages.xsd
User
User.wsdl
UserData.xsd
UserMessages.xsd
Common.xsd
HeaderData.xsd
voipnowservice.wsdl



STEP 4: Right-click on the `voipnowservice.wsdl` file and then pick WSCF.blue Generate Web Service Code, using the following option:



In the 'Code generation' fieldset, **Client-side proxy** option is selected, since we generate the code for the client.

In the 'Options' fieldset, **Public properties** and **Data Binding** are checked.

- When **Public properties** is checked, the code generator will create property getters and setters for the data fields.
- When **Data Binding** is checked, the resulting types will automatically include the implementation of `INotifyPropertyChanged` interface, which is used to notify clients that a property value has changed.

In our examples, the destination namespace is set to `voipnowsoap_net`. Please note that if you change this value, you will have to replace the `using voipnowsoap_net;` line at the beginning of each application file to `using <YOUR_NAMESPACE>;` .

The WSCF tool will generate the proxy classes for you. In our example, the proxy classes have been created within the `voip.cs` file.

You can now use the recently created classes to write applications that interact with your VoipNow SystemAPI.

How To Use It

The SystemAPI .NET Tool contains tests that simulates the following operations:

- add a **Service Provider Account**,
- add an **Organization Account**,
- add a **User Account**,
- add an **Extension Account**,
- get the **Call Costs** for a User Account.

You may find the tests under the path: `<PATH_TO_SYSTEMAPI_TOOL>\Operations\Tests.cs.`

Also, you may find the implementation of the operations mentioned above under the path: `<PATH_TO_SYSTEMAPI_TOOL>\Operations.`

The **entry point** of the SystemAPI .NET Tool is the **Main** method from the **Program** `class (<PATH_TO_SYSTEMAPI_TOOL>\Program.cs` file). Here you may switch between running different tests.

The entry point of the SystemAPI .NET Tool

```
class Program
{
    static void Main(string[] args)
    {
        // Change this with the oauth token of the account you want to use.
        string accessToken = "CHANGEME";

        Tests.AddRelatedAccounts(accessToken);

        // Uncomment the following line if you want to run this test
        //Tests.AddServiceProviderAccount(accessToken);

        // Uncomment the following line if you want to run this test
        //Tests.AddOrganizationAccount(accessToken);

        // Uncomment the following line if you want to run this test
        //Tests.AddUserAccount(accessToken);

        // Uncomment the following line if you want to run this test
        //Tests.AddExtensionAccount(accessToken);
    }
}
```

Authentication

Before running the tests you have to specify the **oauth token** of the account you want to use. In order to achieve this you will update the **accessToken** variable of the **Main** method from the **Program** class (`Program.cs` file) with a valid **oauth token**.

The place where you should set the oauth token

```
class Program
{
    static void Main(string[] args)
    {
        // Change this with the oauth token of the account you want to use.
        string accessToken = "CHANGEME";

                // Tests
        Tests.AddRelatedAccounts(accessToken);

        // Other tests...
    }
}
```

The **outh token** is used later when a `userCredentials` object is created before calling any method of the VoipNow SystemAPI Client-side Proxy.

Using the oauth token to create a userCredetials object

```
//...
userCredentials credentials = new userCredentials() { accessToken = accessToken };
//...
ServiceProviderClient serviceProviderClient = new ServiceProviderClient("ServiceProviderPort");
//...
serviceProviderClient.AddServiceProvider(credentials, request, out response);
```

All the test use the 4PSA demo server located at https://voipnow3demo.4psa.com/.

Examples

Add Related Accounts

The below code snippet shows how to add related accounts starting with a Service Provider Account, and then adding an Organization Account, and then a User Account and finally an Extension Account is added.

It is important to note that after an account is added, the permissions and limits for the account are set. Also, each account adding operation outputs the added account **Id** which is used to add the next account which is a child of the currently added account. For example, the adding of a Service Provider Account outputs the Service Provider Account Id, which is being used to add an Organization Account.

AddRelatedAccounts test

```
public static void AddRelatedAccounts(string accessToken)
{
    // Step 1: add a service provider
    var serviceProviderId = ServiceProviderOperations.AddServiceProviderAccount(accessToken);
    //
    // Step 2: set the service provider permissions and limits
    ServiceProviderOperations.SetServiceProviderAccountPermissionAndLimits(accessToken, serviceProviderId);
    //
    // Step 3: add an organization to the service provider created at the Step 1.
    var organizationID = OrganizationOperations.AddOrganizationAccount(accessToken, serviceProviderId);
    //
    // Step 4: set the organization permissions and limits
    OrganizationOperations.SetOrganizationAccountPermissionsAndLimits(accessToken, organizationID);
    //
    // Step 5: add an user to the organization created at the Step 3.
    var userID = UserOperations.AddUserAccount(accessToken, organizationID);
    //
    // Step 6: set the user permissions and limits
    UserOperations.SetUserAccountPermissionsAndLimits(accessToken, userID);
    //
    // Step 7: add an extension to the user created at the Step 5.
    ExtensionOperations.AddExtensionAccount(accessToken, userID);
    Console.Read();
}
```

In order to run the above test, the **oauth token** must be provided. The test can be found in the file: `<PATH_TO_SYSTEMAPI_TOOL>\Operations\Tests.cs`.

Add a Service Provider Account

The below code snippet shows how to add a **Service Provider Account**. The test can be found inside the file `<PATH_TO_SYSTEMAPI_TOOL>\Operations\Tests.cs`.

Add a Service Provider Account

```
public static void AddServiceProviderAccount(string accessToken)
{
    ServiceProviderOperations.AddServiceProviderAccount(accessToken);

    Console.Read();
}
```

In order to run this test, the **oauth token** must be provided.

The next code snippet shows how the Client-side Proxy is used in order to call a VoipNow SystemAPI operation for adding a **Service Provider Account**.

Calling the VoipNow SystemAPI for adding a Service Provider Account

```
        public static string AddServiceProviderAccount(string accessToken)
        {
            if (string.IsNullOrEmpty(accessToken))
            {
                Console.WriteLine("The access token cannot be null or empty!");
                return null;
            }
            ServicePointManager.ServerCertificateValidationCallback += delegate(object sender,
                X509Certificate certificate, X509Chain chain, SslPolicyErrors sslPolicyErrors)
            {
                return true;
            };
            ServicePointManager.Expect100Continue = false;
            userCredentials credentials = new userCredentials() { accessToken = accessToken };
            AddServiceProvider request = CreateAddServiceProviderRequest(new Random());
            AddServiceProviderResponse response = new AddServiceProviderResponse();
            ServiceProviderClient serviceProviderClient = new ServiceProviderClient("ServiceProviderPort");
            Console.WriteLine("Adding a Service Provider...");
            try
            {
                serviceProviderClient.AddServiceProvider(credentials, request, out response);
            }
            catch (Exception e)
            {
                //exception found, so we check the stack trc
                String trace = e.StackTrace;
                //write the stack trace to the console
                Console.WriteLine("{0} Exception caught.", e);
                //wait for the user to press a key before closing the console
                Console.Read();
            }
            finally
            {
                Console.WriteLine("The response for adding a Service Provider:");
                foreach (PropertyDescriptor descriptor in TypeDescriptor.GetProperties(response))
                {
                    string name = descriptor.Name;
                    object value = descriptor.GetValue(response);
                    Console.WriteLine("\t{0}={1}", name, value);
                }
                Console.WriteLine();
            }
            return response.ID;
        }
```

Add an Organization Account

The below code snippet shows how to add an **Organization Account**. The test can be found inside the file `<PATH_TO_SYSTEMAPI_TOOL>\Operations\Tests.cs`.

Add an Organization Account

```
public static void AddOrganizationAccount(string accessToken)
{
    string serviceProviderId = "CHANGEME";
    OrganizationOperations.AddOrganizationAccount(accessToken, serviceProviderId);


    Console.Read();
}
```

In order to run this test, the **oauth token** must be provided (i.e. accessToken parameter). Also, you must change the value of the `serviceProviderId` variable from "CHANGEME" to a valid Service Provider Account Id.

The next code snippet shows how the Client-side Proxy is used in order to call a VoipNow SystemAPI operation for adding an **Organization Account**.

Calling the VoipNow SystemApi for adding an Organization Account

```
public static string AddOrganizationAccount(string accessToken, string parentServiceProviderID)
       {
           if (string.IsNullOrEmpty(parentServiceProviderID))
           {
               Console.WriteLine("The parentServiceProviderID parameter cannot be null or empty");
               return null;
           }
           if (string.IsNullOrEmpty(accessToken))
           {
               Console.WriteLine("The access token cannot be null or empty!");
               return null;
           }
           ServicePointManager.ServerCertificateValidationCallback += delegate(object sender,
               X509Certificate certificate, X509Chain chain, SslPolicyErrors sslPolicyErrors)
           {
               return true;
           };
           ServicePointManager.Expect100Continue = false;
           userCredentials credentials = new userCredentials() { accessToken = accessToken };
           AddOrganization request = CreateOrganizationRequest(new Random(), parentServiceProviderID);
           AddOrganizationResponse response = new AddOrganizationResponse();
           OrganizationClient organizationClient = new OrganizationClient("OrganizationPort");
           Console.WriteLine("Adding an Organization");
           try
           {
               organizationClient.AddOrganization(credentials, request, out response);
           }
           catch (Exception e)
           {
               //exception found, so we check the stack trc
               String trace = e.StackTrace;
               //write the stack trace to the console
               Console.WriteLine("{0} Exception caught.", e);
               //wait for the user to press a key before closing the console
               Console.Read();
           }
           finally
           {
               Console.WriteLine("The operation response:");
               foreach (PropertyDescriptor descriptor in TypeDescriptor.GetProperties(response))
               {
                   string name = descriptor.Name;
                   object value = descriptor.GetValue(response);
                   Console.WriteLine("\t{0}={1}", name, value);
               }
               Console.WriteLine();
           }
           return response.ID;
       }
```

Get the Call Costs for a User Account

The below code snippet shows how to get the call costs for a **User Account**. The test can be found inside the file `<PATH_TO_SYSTEMAPI_TOOL>\Operations\Tests.cs`.

Get the Call Costs for a User Account

```
public static void GetCallCosts(string accessToken)
{
    string userID = "CHANGEME";
    CallCostsOperations.GetCallCosts(accessToken, userID);

    Console.Read();
}
```

In order to run this test, the **oauth token** must be provided (i.e. accessToken parameter). Also, you must change the value of the `userId` variable from "CHANGEME" to a valid User Account Id.

The next code snippet shows how the Client-side Proxy is used in order to call a VoipNow SystemAPI operation for getting the call costs for a **User Account**.

Calling the VoipNow SystemApi for getting the call costs for a User Account

```
public static void GetCallCosts(string accessToken, string userID)
        {
            if (string.IsNullOrEmpty(userID))
            {
                Console.WriteLine("The userID parameter cannot be null or empty");
                return;
            }
            if (string.IsNullOrEmpty(accessToken))
            {
                Console.WriteLine("The access token cannot be null or empty!");
                return;
            }
            ServicePointManager.ServerCertificateValidationCallback += delegate(object sender,
                X509Certificate certificate, X509Chain chain, SslPolicyErrors sslPolicyErrors)
            {
                return true;
            };
            ServicePointManager.Expect100Continue = false;
            userCredentials credentials = new userCredentials() { accessToken = accessToken };
            CallCosts request = CreateCallCostsRequest(userID);
            CallCostsResponse response = new CallCostsResponse();
            ReportClient reportClient = new ReportClient("ReportPort");
            Console.WriteLine("Getting the call costs for the user with the id = {0}", userID);
            try
            {
                reportClient.CallCosts(credentials, request, out response);
            }
            catch (Exception e)
            {
                //exception found, so we check the stack trc
                String trace = e.StackTrace;
                //write the stack trace to the console
                Console.WriteLine("{0} Exception caught.", e);
                //wait for the user to press a key before closing the console
                Console.Read();
            }
            finally
            {
                Console.WriteLine("The operation response:");
                foreach (PropertyDescriptor descriptor in TypeDescriptor.GetProperties(response))
                {
                    string name = descriptor.Name;
                    object value = descriptor.GetValue(response);
                    Console.WriteLine("\t{0}={1}", name, value);
                }
                Console.WriteLine();
            }
        }
```