

# Imagicle Call Analytics for Cisco UC

## Web Service API Guide

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## Introduction

### Monitor, share, inform.

Thanks to your new Call Analytics for Cisco UC, you can increase your savings and improve your Business efficiency, thanks to brand new methods for controlling, sharing with your colleagues and keep your clients informed.

Thanks to these new features of integration via Call Analytics web services, you can access telephone traffic data of your Company via different applications, such as your Intranet, your Web portal, ERP or CRM or even from MS-Office documents.

This document contains a description regarding how Call Analytics accesses data in a simple and secure way.

### Call Analytics web services

Call Analytics Web services are methods that allow the interrogation and display of Call Analytics telephone traffic data using different applications, being able to filter such data according to the conditions the final user's habit regarding Call Analytics, using period filters (today, yesterday, this month and so on) and any information handled by Call Analytics.

### Web Service data format

Data are returned in standard XML format, similar to HTML, implementing communication among different applications and platforms (Windows, Linux, Unix, Mac).

### How to use Web Service di Call Analytics

Web Services are available on **http://{server\_address}/fwbib/WsPublicServices.asmx**, {server\_address} represents the server running Call Analytics.

They can be requested by any client able to interrogate web servers using http protocol.

Call Analytics Web Services can be used via POST and GET methods of the http protocol.

### Use of the Web Services with HTTPS protocol

If Call Analytics site is configured with an SSL certificate, Web Services can be interrogated in a secure way thanks to the HTTPS protocol.

### Development tools

Call Analytics Web Services can be used in any development environment capable of interpreting WSDL language, such as MS-Visual Studio 2005/2008 dot NET, Apache AXIS, J2EE, JBI, IBM WebSphere, BEA WebLogic and many others.

### Necessary authorisations for using Web Services

In order to use Call Analytics Web Services, a username and password of a Call Analytics administrator should be used.

## Call Analytics Web Services specifications

### Available methods

Calls filtered according to a period

```
public DataTable WsGetCallList(string UserName, string Password, enPeriodType TimePeriodCondition, bool GetAllFields)
```

Calls filtered according to a period and a condition on call table field

```
public DataTable WsGetCallListByCondition(string UserName, string Password, enPeriodType TimePeriodCondition, bool GetAllFields, enFields ConditionField, enFieldOperator ConditionOperator, string ConditionValue)
```

Calls filtered according to a period and to one or more conditions on the call table fields

```
public DataTable WsGetCallListByConditions(string UserName, string Password, enPeriodType TimePeriodCondition, bool GetAllFields, Condition[] Conditions)
```

Cost totals and averages of the durations according to a group field and a period.

```
public DataTable WsGetGroupQuery(string UserName, string Password, enPeriodType TimePeriodCondition, enFieldsForGroup GroupField)
```

Cost totals and averages of the durations according to a group field, a period and a condition on call table field

```
public DataTable WsGetGroupQueryByConditions(string UserName, string Password, enPeriodType TimePeriodCondition, enFieldsForGroup GroupField, Condition[] Conditions)
```

Cost totals and averages of the durations according to a group field, a period and to one or more conditions on the call table fields

```
public DataTable WsGetCallList(string UserName, string Password, enPeriodType TimePeriodCondition, bool GetAllFields)
```

## Input parameters

All methods can accept the following input parameters:

### UserName field

Account used to access Call Analytics services, it has to be an administrator.

#### SOAP/WSDL definition

<UserName>**string**</UserName>

### Password field

Password used to access Call Analytics

#### SOAP/WSDL definition

<Password>**string**</Password>

### GetAllFields field

Tells if the method has to return a subset of fields from Call Analytics Calls table or all fields.

#### SOAP/WSDL definition

<GetAllFields>**boolean**</GetAllFields>

### Period condition (TimePeriodCondition)

Represents the period subject of the analysis

VALUE	DESCRIPTION
TODAY	Today
YESTERDAY	Yesterday
THIS_WEEK	This week
LAST_WEEK	Last week
THIS_MONTH	This month
LAST_MONTH	Last month
THIS_YEAR	This year
LAST_YEAR	Last year
LAST_2DAYS	Last 2 days
LAST_7DAYS	Last 2 days
LAST_30DAYS	Last 2 days
LAST_60DAYS	Last 60 days
LAST_12MONTHS	Last 12 months
LAST_2YEARS	Last 2 years

#### SOAP/WSDL definition

<TimePeriodCondition>TODAY or YESTERDAY or THIS\_WEEK or LAST\_WEEK or THIS\_MONTH or LAST\_MONTH or THIS\_YEAR or LAST\_YEAR or LAST\_2DAYS or LAST\_7DAYS or LAST\_30DAYS or LAST\_60DAYS or LAST\_12MONTHS or LAST\_2YEARS</TimePeriodCondition>

### Dato da analizzare (Field)

Rappresenta un campo sul quale si vuole applicare una condizione.

VALORE	DESCRIZIONE	TIPO	FORMATO
COST	Call cost	decimal	
COST_2	Comparison cost	decimal	
TARIFF	Tariff	decimal	
DATE	Call date	dateTime	
DURATION	Call duration	dateTime	
TIME	Call time	dateTime	
ANSWER	Answered call	dateTime	
TRANSF	Transferred call	short	0=not transferred 1= transferred
PKID	Table record key	int	
PULSES	Units	int	
PERC_DIFF	Call cost difference (%)	float	
AREA	Call area	string	
FIELD1	Custom 1 field	string	
FIELD2	Custom 2 field	string	
FIELD3	Custom 3 field	string	
FIELD4	Custom 4 field	string	
CARRIER1	Telephone Carrier	string	
CARRIER2	Telephone Carrier Comparison Tariff	string	
COST_CENTRE	Cost Centre	string	
ACCOUNT	PIN Code	string	
EXT	Extension	string	
TIME_BAND	Call time band	string	
DAY	Day name	string	
LINE	Line	string	
COUNTRY	Nation	string	
NAME	Caller name	string	
EXT_NAME	Extension name	string	
NUMBER	Caller number	string	
DEP	Department	string	
SITE	PABX site code	string	
CALL_TYPE	Call type	string	I=entrante O=uscente
DEST_TYPE	Destination type	string	
CURR	Currency	string	
CURR_EXC	Currency exchange rate	double	
UTC_DT	UTC date time	dateTime	
DEP_2	Second extension department	string	
COST_CENTER_2	Second extension cost centre	string	
REF_CURR	Reference currency	string	
DATE_2	Second extension date (for multi-Country)	dateTime	
TIME_2	Second extension time (for multi-Country)	dateTime	
HQ	Site	string	
HQ_2	Second extension site	string	

GROUP_NAME	Group name	string
REF_COST	Comparison cost (costo1 x for currency exchange rate)	double
TRAFFIC_TYPE	Traffic type	string
PABX_NAME	PABX name	string
PABX_DT	PABX time	dateTime
CALLID	CDR Id	int
TRANSF_TO	Transferred to	string
TRANSF_FROM	Transferred from	string
EXT_TYPE	Extension type	string
EXT_GROUP1	Extension first group	string
EXT_GROUP2	Extension second group	string
EXT_GROUP3	Extension third group	string
PROFILE	Call Analytics user name which the filter should be taken from	string

#### SOAP/WSDL definition

<ConditionField>COST or COST\_2 or COST\_DIFF or TARIFF or DATE or DURATION or TIME or ANSWER or TRANSF or PKID or PULSES or PERC\_DIFF or AREA or FIELD1 or FIELD2 or FIELD3 or FIELD4 or CARRIER1 or CARRIER2 or COST\_CENTRE or ACCOUNT or EXT or TIME\_BAND or DAY or LINE or COUNTRY or NAME or EXT\_NAME or NUMBER or LINE\_NUMBER or DEP or SITE or CALL\_TYPE or DEST\_TYPE or CURR or CURR\_EXC or UTC\_DT or DEP\_2 or COST\_CENTER\_2 or REF\_CURR or DATE\_2 or TIME\_2 or HQ or HQ\_2 or GROUP\_NAME or REF\_COST or TRAFFIC\_TYPE or PABX\_NAME or PABX\_DT or CALLID or TRANSF\_TO or TRANSF\_FROM or EXT\_TYPE or EXT\_GROUP1 or EXT\_GROUP2 or EXT\_GROUP3 or PROFILE</ConditionField>

#### Carrier field (ConditionOperator)

represents the operation on the field

VALUE	DESCRIPTION
EQUAL	Equal to
NOT_EQUAL	Different from
IN	Between a value range
CONTAINS	Contains a string
NOT_CONTAINS	Does not contain a string
GREATER	Greater than
LESS	Less than
LESS_OR_EQUAL	Less or equal to
GRATER_OR_EQUAL	Greater or equal to
STARTS	Starts with
ENDS	Ends with
NOT_STARTS	Does not start with
NOT_ENDS	Does not end with
EMPTY	Empty
NOT_EMPTY	Not empty

#### SOAP/WSDL definition

<ConditionOperator>EQUAL or NOT\_EQUAL or IN or CONTAINS or NOT\_CONTAINS or GREATER or LESS or LESS\_OR\_EQUAL or GRATER\_OR\_EQUAL or STARTS or ENDS or NOT\_STARTS or NOT\_ENDS or EMPTY or NOT\_EMPTY</ConditionOperator>



### Value field (ConditionValue)

represents the value of the field the condition is applied to

#### SOAP/WSDL definition

<ConditionValue>**string**</ConditionValue>

### Group field (GroupField)

Represents the field you wish to group.

see description of the field values for the value description.

#### SOAP/WSDL definition

<GroupField>TARIFF or ANSWER or TRANSF or AREA or CARRIER1 or CARRIER2 or COST\_CENTRE or ACCOUNT or EXT or DAY or LINE or COUNTRY or NAME or EXT\_NAME or NUMBER or LINE\_NUMBER or DEP or SITE or CALL\_TYPE or DEST\_TYPE or CURR or DEP\_2 or COST\_CENTER\_2 or REF\_CURR or HQ or HQ\_2 or GROUP\_NAME or TRAFFIC\_TYPE or PABX\_NAME or PABX\_DT or CALLID or TRANSF\_TO or TRANSF\_FROM or EXT\_TYPE or EXT\_GROUP1 or EXT\_GROUP2 or EXT\_GROUP3</GroupField>

## Output values

Output of the `WsGetCallList`, `WsGetCallListByCondition`, `WsGetCallListByConditions` methods

Basic call list

FIELD	DESCRIPTION	TYPE	FORMAT
COST	Call cost	decimal	
TARIFF	Tariff	decimal	
DATE	Call date	dateTime	
DURATION	Call duration	dateTime	
TIME	Call time	dateTime	
ANSWER	Answered call	dateTime	
TRANSF	Transferred call	short	0=not transferred 1=transferred
AREA	Caller area	string	
COST_CENTRE	Cost centre	string	
EXT	Extension	string	
LINE	Line	string	
COUNTRY	Country	string	
NAME	Caller name	string	
EXT_NAME	Extension name	string	
NUMBER	Caller number	string	
DEP	Department	string	
CALL_TYPE	Call type	string	I=incoming O=outgoing
DEST_TYPE	Destination type	string	
CURR	Currency	string	
REF_CURR	Reference currency	string	
REF_COST	Reference cost (costo1 for currency exchange rate)	double	
TRAFFIC_TYPE	Traffic type	string	
PABX_NAME	Pabx name	string	
PABX_DT	PABX time	dateTime	
TRANSF_TO	Transferred to	string	
TRANSF_FROM	Transferred from	string	
EXT_TYPE	Extension type	string	
EXT_GROUP1	Extension first group	string	
EXT_GROUP2	Extension second group	string	
EXT_GROUP3	Extension third group	string	

### Full call list

FIELD	DESCRIPTION	TYPE	FORMAT
COST	Call cost	decimal	
COST_2	Reference cost	decimal	
TARIFF	Tariff	decimal	
DATE	Call date	dateTime	
DURATION	Call duration	dateTime	
TIME	Call time	dateTime	
ANSWER	Answered call	dateTime	
TRANSF	Transferred call	short	0=not transferred 1=transferred
PKID	Record key on table	int	
PULSES	Units	int	
PERC_DIFF	% difference between call costs	float	
AREA	Caller area	string	
FIELD1	custom 1 field	string	
FIELD2	custom 2 field	string	
FIELD3	custom 3 field	string	
FIELD4	custom 4 field	string	
CARRIER1	Telephone carrier	string	
CARRIER2	Telephone carrier comparison tariff	string	
COST_CENTRE	Cost Centre	string	
ACCOUNT	PIN code	string	
EXT	Extension	string	
TIME_BAND	Call time band	string	
DAY	Day name	string	
LINE	Line	string	
COUNTRY	Country	string	
NAME	Caller name	string	
EXT_NAME	Extension name	string	
NUMBER	Caller name	string	
DEP	Department	string	
SITE	PABX code	string	
CALL_TYPE	Call type	string	I=incoming O=outgoing
DEST_TYPE	Destination type	string	
CURR	Currency	string	
CURR_EXC	Exchange rate	double	
UTC_DT	UTC date time	dateTime	
DEP_2	Second extension department	string	
COST_CENTER_2	Second extension cost centre	string	
REF_CURR	Comparison currency	string	
DATE_2	Second extension date (for multi-Country)	dateTime	

TIME_2	Second extension time (for multi-Country)	dateTime	
HQ	Site	string	
HQ_2	Second extension site	string	
GROUP_NAME	Group name	string	
REF_COST	Comparison cost (costo1 for exchange rate)	double	
TRAFFIC_TYPE	Traffic type	string	
PABX_NAME	PABX name	string	
PABX_DT	PABX time	dateTime	
CALLID	CDR Id	int	
TRANSF_TO	Transferred to	string	
TRANSF_FROM	Transferred from	string	
EXT_TYPE	Extension type	string	
EXT_GROUP1	First extension grouping	string	
EXT_GROUP2	Second First extension grouping	string	
EXT_GROUP3	Third First extension grouping	string	
EXT_GROUP4	Fourth First extension grouping	string	
EXT_GROUP5	Fifth First extension grouping	string	
EXT_GROUP6	Sixth First extension grouping	string	
EXT_GROUP7	Seventh First extension grouping	string	
EXT_GROUP8	Eighth First extension grouping	string	
EXT_GROUP9	Nineth First extension grouping	string	
EXT_GROUP10	Tenth First extension grouping	string	
IS_EXTERNAL	Is an external call	boolean	1=External 0=Internal
IS_OUTGOING	Is an outgoing call	boolean	1=Outgoing 0=Incoming
IS_ANSWERED	Is an answered call	boolean	1=answered 0=unanswered
CALL_OUTCOME	Call outcome	short	"-"= Outgoing external calls that have not been charged "0" - calls with duration 0 "1" - calls with duration greater than 0
DURATION_IN_SECONDS	Call duration in seconds	int	
SECONDS_TO_RESPONSE	Call waiting time in seconds	int	
LOCAL_PARTY_PBX_USERNAME	Caller PBX username	string	
REMOTE_PARTY_PBX_USERNAME	Called PBX username	string	
MEDIA_TYPE	Media type	string	
CALL_PURPOSE	Call purpose	string	

TERMINATION_CAUSE	Termination cause	string	
LOCAL_PARTY_DEVICE_NAME	Caller device name	string	
REMOTE_PARTY_DEVICE_NAME	Called device name	string	
LOCAL_PARTY_DEVICE_MODEL	Caller device model	string	
REMOTE_PARTY_DEVICE_MODEL	Called device model	string	
HUNT_GROUP_PILOT	Hunt Group pilot	string	
HUNT_GROUP_NAME	Hunt Group name	string	
REMOTE_PARTY_DEVICE_IS_VIRTUAL	Is called device virtual	boolean	1=virtual 0=physical
LOCAL_PARTY_DEVICE_IS_VIRTUAL	Is caller device virtual	boolean	1=virtual 0=physical
LOCAL_PARTY_TYPE	Caller party type	string	
REMOTE_PARTY_TYPE	Called party type	string	
TRANSFER_DESTINATION_PARTY_TYPE	Transfer destination party type	string	
TRANSFER_ORIGIN_PARTY_TYPE	Transfer origin party type	string	
TRANSFER_REASON	Transfer reason	string	
TRANSFER_ORIGIN_PARTY_PBX_USERNAME	Transfer origin party PBX username	string	
TRANSFER_DESTINATION_PARTY_PBX_USERNAME	Transfer destination party PBX usernames	string	

### Output of the WsGetGroupQuery, WsGetGroupQueryByCondition, WsGetGroupQueryByConditions methods

VALUE	DESCRIPTION	TYPE
GROUP1	Group field	string
TOT_COST	Total cost	double
AVG_COST	Average Cost	double
TOT_COST2	Total comparison cost	double
AVG_COST2	Average comparison cost	double
OUT_DURATION	Outgoing call duration (sec)	int
OUT_AVG_DURATION	Average call duration (sec)	double
OUT_COUNT	Total outgoing calls	int
IN_COUNT	Total incoming calls	int
IN_UNANSW_COUNT	Total incoming unanswered	int
IN_DURATION	Total duration - incoming calls (sec)	int
IN_AVG_TIME	Average duration – incoming calls (sec)	double
IN_RING_DURATION	Ring time duration – incoming calls	int
IN_RING_AVG_DURATION	Average ring time duration – incoming calls	int

## Error output

In case of a handled error, a string type message is returned with a description of the error that occurred.

Example:

```
<DocumentElement xmlns="">  
  <ERROR diffgr:id="ERROR1" msdata:rowOrder="0" diffgr:hasChanges="inserted">  
    <MESSAGE>Access is denied due to invalid credentials</MESSAGE>  
  </ERROR>  
</DocumentElement>
```

## Output examples

### Simplified output example of the call list

```
<?xml version="1.0" encoding="utf-8"?>
<DataTable xmlns="http://www.telcen.it/ws">
  <xs:schema id="NewDataSet" xmlns="" xmlns:xs="http://www.w3.org/2001/XMLSchema"
xmlns:msdata="urn:schemas-microsoft-com:xml-msdata">
  <xs:element name="NewDataSet" msdata:IsDataSet="true" msdata:MainDataTable="Table" msdata:Locale="">
    <xs:complexType>
      <xs:choice minOccurs="0" maxOccurs="unbounded">
        <xs:element name="Table">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="COST" type="xs:decimal" minOccurs="0" />
              <xs:element name="TARIFF" type="xs:decimal" minOccurs="0" />
              <xs:element name="DATE" type="xs:dateTime" minOccurs="0" />
              <xs:element name="DURATION" type="xs:dateTime" minOccurs="0" />
              <xs:element name="TIME" type="xs:dateTime" minOccurs="0" />
              <xs:element name="ANSWER" type="xs:dateTime" minOccurs="0" />
              <xs:element name="TRANSF" type="xs:short" minOccurs="0" />
              <xs:element name="AREA" type="xs:string" minOccurs="0" />
              <xs:element name="COST_CENTRE" type="xs:string" minOccurs="0" />
              <xs:element name="EXT" type="xs:string" minOccurs="0" />
              <xs:element name="LINE" type="xs:string" minOccurs="0" />
              <xs:element name="COUNTRY" type="xs:string" minOccurs="0" />
              <xs:element name="NAME" type="xs:string" minOccurs="0" />
              <xs:element name="EXT_NAME" type="xs:string" minOccurs="0" />
              <xs:element name="NUMBER" type="xs:string" minOccurs="0" />
              <xs:element name="DEP" type="xs:string" minOccurs="0" />
              <xs:element name="CALL_TYPE" type="xs:string" minOccurs="0" />
              <xs:element name="DEST_TYPE" type="xs:string" minOccurs="0" />
              <xs:element name="CURR" type="xs:string" minOccurs="0" />
              <xs:element name="REF_CURR" type="xs:string" minOccurs="0" />
              <xs:element name="REF_COST" type="xs:double" minOccurs="0" />
              <xs:element name="TRAFFIC_TYPE" type="xs:string" minOccurs="0" />
              <xs:element name="PABX_NAME" type="xs:string" minOccurs="0" />
              <xs:element name="TRANSF_TO" type="xs:string" minOccurs="0" />
              <xs:element name="TRANSF_FROM" type="xs:string" minOccurs="0" />
              <xs:element name="EXT_TYPE" type="xs:string" minOccurs="0" />
              <xs:element name="EXT_GROUP1" type="xs:string" minOccurs="0" />
              <xs:element name="EXT_GROUP2" type="xs:string" minOccurs="0" />
              <xs:element name="EXT_GROUP3" type="xs:string" minOccurs="0" />
            </xs:sequence>
          </xs:complexType>
        </xs:element>
      </xs:choice>
    </xs:complexType>
  </xs:element>
</xs:schema>
<diffgr:diffgram xmlns:msdata="urn:schemas-microsoft-com:xml-msdata" xmlns:diffgr="urn:schemas-microsoft-
```

```
com:xml-diffgram-v1">
  <NewDataSet xmlns="">
    <Table diffgr:id="Table1" msdata:rowOrder="0">
      <COST>0.0000</COST>
      <TARIFF>0.0000</TARIFF>
      <DATE>2009-06-10T00:00:00+02:00</DATE>
      <DURATION>1899-12-30T00:02:38+01:00</DURATION>
      <TIME>1899-12-30T15:09:50.063+01:00</TIME>
      <ANSWER>1899-12-30T00:00:00+01:00</ANSWER>
      <TRANSF>1</TRANSF>
      <COST_CENTRE>Commerciale</COST_CENTRE>
      <EXT>369</EXT>
      <LINE>6</LINE>
      <EXT_NAME>Rosa Bianchi</EXT_NAME>
      <DEP>Vendite estero</DEP>
      <CALL_TYPE>I</CALL_TYPE>
      <REF_CURR>EUR</REF_CURR>
      <REF_COST>0</REF_COST>
      <TRAFFIC_TYPE>E</TRAFFIC_TYPE>
    </Table>
    <Table diffgr:id="Table2" msdata:rowOrder="1">
      <COST>0.1191</COST>
      <TARIFF>0.0890</TARIFF>
      <DATE>2009-06-10T00:00:00+02:00</DATE>
      <DURATION>1899-12-30T00:00:36+01:00</DURATION>
      <TIME>1899-12-30T15:09:40.06+01:00</TIME>
      <ANSWER>1899-12-30T00:00:00+01:00</ANSWER>
      <TRANSF>0</TRANSF>
      <AREA>Roma</AREA>
      <COST_CENTRE>Commerciale</COST_CENTRE>
      <EXT>368</EXT>
      <LINE>3</LINE>
      <COUNTRY>Italia</COUNTRY>
      <EXT_NAME>Ferruccio Palmerini</EXT_NAME>
      <NUMBER>0637705267</NUMBER>
      <DEP>Helpdesk</DEP>
      <CALL_TYPE>O</CALL_TYPE>
      <DEST_TYPE>Nazionali</DEST_TYPE>
      <REF_CURR>EUR</REF_CURR>
      <REF_COST>0.1191</REF_COST>
      <TRAFFIC_TYPE>E</TRAFFIC_TYPE>
    </Table>
  </NewDataSet>
</diffgr:diffgram>
</DataTable>
```



## Extended output example of the call list

```
<?xml version="1.0" encoding="utf-8"?>
<DataTable xmlns="http://www.telcen.it/ws">
  <xs:schema id="NewDataSet" xmlns="" xmlns:xs="http://www.w3.org/2001/XMLSchema"
xmlns:msdata="urn:schemas-microsoft-com:xml-msdata">
  <xs:element name="NewDataSet" msdata:IsDataSet="true" msdata:MainDataTable="Table" msdata:Locale="">
    <xs:complexType>
      <xs:choice minOccurs="0" maxOccurs="unbounded">
        <xs:element name="Table">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="COST" type="xs:decimal" minOccurs="0" />
              <xs:element name="COST_2" type="xs:decimal" minOccurs="0" />
              <xs:element name="COST_DIFF" type="xs:decimal" minOccurs="0" />
              <xs:element name="TARIFF" type="xs:decimal" minOccurs="0" />
              <xs:element name="DATE" type="xs:dateTime" minOccurs="0" />
              <xs:element name="DURATION" type="xs:dateTime" minOccurs="0" />
              <xs:element name="TIME" type="xs:dateTime" minOccurs="0" />
              <xs:element name="ANSWER" type="xs:dateTime" minOccurs="0" />
              <xs:element name="TRANSF" type="xs:short" minOccurs="0" />
              <xs:element name="PKID" type="xs:int" minOccurs="0" />
              <xs:element name="PULSES" type="xs:int" minOccurs="0" />
              <xs:element name="PERC_DIFF" type="xs:float" minOccurs="0" />
              <xs:element name="AREA" type="xs:string" minOccurs="0" />
              <xs:element name="FIELD1" type="xs:string" minOccurs="0" />
              <xs:element name="FIELD2" type="xs:string" minOccurs="0" />
              <xs:element name="FIELD3" type="xs:string" minOccurs="0" />
              <xs:element name="FIELD4" type="xs:string" minOccurs="0" />
              <xs:element name="CARRIER1" type="xs:string" minOccurs="0" />
              <xs:element name="CARRIER2" type="xs:string" minOccurs="0" />
              <xs:element name="COST_CENTRE" type="xs:string" minOccurs="0" />
              <xs:element name="ACCOUNT" type="xs:string" minOccurs="0" />
              <xs:element name="EXT" type="xs:string" minOccurs="0" />
              <xs:element name="TIME_BAND" type="xs:string" minOccurs="0" />
              <xs:element name="DAY" type="xs:string" minOccurs="0" />
              <xs:element name="LINE" type="xs:string" minOccurs="0" />
              <xs:element name="COUNTRY" type="xs:string" minOccurs="0" />
              <xs:element name="NAME" type="xs:string" minOccurs="0" />
              <xs:element name="EXT_NAME" type="xs:string" minOccurs="0" />
              <xs:element name="NUMBER" type="xs:string" minOccurs="0" />
              <xs:element name="DEP" type="xs:string" minOccurs="0" />
              <xs:element name="SITE" type="xs:string" minOccurs="0" />
              <xs:element name="CALL_TYPE" type="xs:string" minOccurs="0" />
              <xs:element name="DEST_TYPE" type="xs:string" minOccurs="0" />
              <xs:element name="CURR" type="xs:string" minOccurs="0" />
              <xs:element name="CURR_EXC" type="xs:double" minOccurs="0" />
              <xs:element name="UTC_DT" type="xs:dateTime" minOccurs="0" />
              <xs:element name="DEP_2" type="xs:string" minOccurs="0" />
              <xs:element name="COST_CENTER_2" type="xs:string" minOccurs="0" />
              <xs:element name="REF_CURR" type="xs:string" minOccurs="0" />
              <xs:element name="DATE_2" type="xs:dateTime" minOccurs="0" />
              <xs:element name="TIME_2" type="xs:dateTime" minOccurs="0" />
            
```

```

<xs:element name="HQ" type="xs:string" minOccurs="0" />
<xs:element name="HQ_2" type="xs:string" minOccurs="0" />
<xs:element name="GROUP_NAME" type="xs:string" minOccurs="0" />
<xs:element name="REF_COST" type="xs:double" minOccurs="0" />
<xs:element name="TRAFFIC_TYPE" type="xs:string" minOccurs="0" />
<xs:element name="PABX_NAME" type="xs:string" minOccurs="0" />
<xs:element name="PABX_DT" type="xs:dateTime" minOccurs="0" />
<xs:element name="CALLID" type="xs:int" minOccurs="0" />
<xs:element name="TRANSF_TO" type="xs:string" minOccurs="0" />
<xs:element name="TRANSF_FROM" type="xs:string" minOccurs="0" />
<xs:element name="EXT_TYPE" type="xs:string" minOccurs="0" />
<xs:element name="EXT_GROUP1" type="xs:string" minOccurs="0" />
<xs:element name="EXT_GROUP2" type="xs:string" minOccurs="0" />
<xs:element name="EXT_GROUP3" type="xs:string" minOccurs="0" />
</xs:sequence>
</xs:complexType>
</xs:element>
</xs:choice>
</xs:complexType>
</xs:element>
</xs:schema>
<diffgr:diffgram xmlns:msdata="urn:schemas-microsoft-com:xml-msdata" xmlns:diffgr="urn:schemas-microsoft-com:xml-diffgram-v1">
  <NewDataSet xmlns="">
    <Table diffgr:id="Table1" msdata:rowOrder="0">
      <COST>0.0000</COST>
      <COST_2>0.0000</COST_2>
      <COST_DIFF>0.0000</COST_DIFF>
      <TARIFF>0.0000</TARIFF>
      <DATE>2009-06-10T00:00:00+02:00</DATE>
      <DURATION>1899-12-30T00:02:38+01:00</DURATION>
      <TIME>1899-12-30T15:09:50.063+01:00</TIME>
      <ANSWER>1899-12-30T00:00:00+01:00</ANSWER>
      <TRANSF>1</TRANSF>
      <PKID>1482007</PKID>
      <PULSES>0</PULSES>
      <PERC_DIFF>0</PERC_DIFF>
      <COST_CENTRE>Commerciale</COST_CENTRE>
      <EXT>369</EXT>
      <DAY>Mer</DAY>
      <LINE>6</LINE>
      <EXT_NAME>Rosa Bianchi</EXT_NAME>
      <DEP>Vendite estero</DEP>
      <SITE>SITE</SITE>
      <CALL_TYPE>I</CALL_TYPE>
      <CURR_EXC>1</CURR_EXC>
      <REF_CURR>EUR</REF_CURR>
      <REF_COST>0</REF_COST>
      <TRAFFIC_TYPE>E</TRAFFIC_TYPE>
      <PABX_DT>2005-03-07T17:21:41+01:00</PABX_DT>
    </Table>
    <Table diffgr:id="Table2" msdata:rowOrder="1">
      <COST>0.1191</COST>

```

```
<COST_2>0.0390</COST_2>
<COST_DIFF>-0.0801</COST_DIFF>
<TARIFF>0.0890</TARIFF>
<DATE>2009-06-10T00:00:00+02:00</DATE>
<DURATION>1899-12-30T00:00:36+01:00</DURATION>
<TIME>1899-12-30T15:09:40.06+01:00</TIME>
<ANSWER>1899-12-30T00:00:00+01:00</ANSWER>
<TRANSF>0</TRANSF>
<PKID>1482008</PKID>
<PULSES>0</PULSES>
<PERC_DIFF>-205.384613</PERC_DIFF>
<AREA>Roma</AREA>
<FIELD1>2</FIELD1>
<CARRIER1>Telecom Italia Affari (15-06-2004)</CARRIER1>
<CARRIER2>Nodalys Business Club (01-01-2004)</CARRIER2>
<COST_CENTRE>Commerciale</COST_CENTRE>
<EXT>368</EXT>
<TIME_BAND>Intera</TIME_BAND>
<DAY>Gio</DAY>
<LINE>3</LINE>
<COUNTRY>Italia</COUNTRY>
<EXT_NAME>Ferruccio Palmerini</EXT_NAME>
<NUMBER>0637705267</NUMBER>
<DEP>Helpdesk</DEP>
<SITE>SITE</SITE>
<CALL_TYPE>O</CALL_TYPE>
<DEST_TYPE>Nazionali</DEST_TYPE>
<CURR_EXC>1</CURR_EXC>
<REF_CURR>EUR</REF_CURR>
<REF_COST>0.1191</REF_COST>
<TRAFFIC_TYPE>E</TRAFFIC_TYPE>
<PABX_DT>2004-01-27T14:56:45+01:00</PABX_DT>
</Table>
</NewDataSet>
</diffgr:diffgram>
</DataTable>
```

## WsGetGroupQuery output example

```

<?xml version="1.0" encoding="utf-8"?>
<DataTable xmlns="http://www.telcen.it/ws">
  <xs:schema id="NewDataSet" xmlns="" xmlns:xs="http://www.w3.org/2001/XMLSchema"
xmlns:msdata="urn:schemas-microsoft-com:xml-msdata">
  <xs:element name="NewDataSet" msdata:IsDataSet="true" msdata:MainDataTable="Table" msdata:Locale="">
    <xs:complexType>
      <xs:choice minOccurs="0" maxOccurs="unbounded">
        <xs:element name="Table">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="GROUP1" type="xs:string" minOccurs="0" />
              <xs:element name="TOT_COST" type="xs:double" minOccurs="0" />
              <xs:element name="AVG_COST" type="xs:double" minOccurs="0" />
              <xs:element name="TOT_COST2" type="xs:double" minOccurs="0" />
              <xs:element name="AVG_COST2" type="xs:double" minOccurs="0" />
              <xs:element name="OUT_DURATION" type="xs:int" minOccurs="0" />
              <xs:element name="OUT_AVG_DURATION" type="xs:double" minOccurs="0" />
              <xs:element name="OUT_COUNT" type="xs:int" minOccurs="0" />
              <xs:element name="IN_COUNT" type="xs:int" minOccurs="0" />
              <xs:element name="IN_UNANSW_COUNT" type="xs:int" minOccurs="0" />
              <xs:element name="IN_DURATION" type="xs:int" minOccurs="0" />
              <xs:element name="IN_AVG_TIME" type="xs:double" minOccurs="0" />
              <xs:element name="IN_RING_DURATION" type="xs:int" minOccurs="0" />
              <xs:element name="IN_RING_AVG_DURATION" type="xs:int" minOccurs="0" />
            <xs:element name="REF_CURRENCY" type="xs:string" minOccurs="0" />
          </xs:sequence>
        </xs:complexType>
      </xs:element>
    </xs:choice>
  </xs:complexType>
</xs:element>
</xs:schema>
<diffgr:diffgram xmlns:msdata="urn:schemas-microsoft-com:xml-msdata" xmlns:diffgr="urn:schemas-microsoft-com:xml-diffgram-v1">
  <NewDataSet xmlns="">
    <Table diffgr:id="Table1" msdata:rowOrder="0">
      <GROUP1>302</GROUP1>
      <TOT_COST>0</TOT_COST>
      <AVG_COST>0</AVG_COST>
      <TOT_COST2>0</TOT_COST2>
      <AVG_COST2>0</AVG_COST2>
      <OUT_COUNT>0</OUT_COUNT>
      <IN_COUNT>2</IN_COUNT>
      <IN_UNANSW_COUNT>0</IN_UNANSW_COUNT>
      <IN_DURATION>799</IN_DURATION>
      <IN_AVG_TIME>399.5</IN_AVG_TIME>
      <IN_RING_DURATION>0</IN_RING_DURATION>
      <IN_RING_AVG_DURATION>0</IN_RING_AVG_DURATION>
      <REF_CURRENCY>EUR</REF_CURRENCY>
    </Table>
    <Table diffgr:id="Table2" msdata:rowOrder="1">

```

```
<GROUP1>307</GROUP1>
<TOT_COST>0</TOT_COST>
<AVG_COST>0</AVG_COST>
<TOT_COST2>0</TOT_COST2>
<AVG_COST2>0</AVG_COST2>
<OUT_COUNT>0</OUT_COUNT>
<IN_COUNT>1</IN_COUNT>
<IN_UNANSW_COUNT>0</IN_UNANSW_COUNT>
<IN_DURATION>16</IN_DURATION>
<IN_AVG_TIME>16</IN_AVG_TIME>
<IN_RING_DURATION>2</IN_RING_DURATION>
<IN_RING_AVG_DURATION>2</IN_RING_AVG_DURATION>
  <REF_CURRENCY>EUR</REF_CURRENCY>
</Table>
<Table diffgr:id="Table3" msdata:rowOrder="2">
  <GROUP1>308</GROUP1>
  <TOT_COST>0.0608</TOT_COST>
  <AVG_COST>0.020266666666666665</AVG_COST>
  <TOT_COST2>0.0146</TOT_COST2>
  <AVG_COST2>0.0048666666666666667</AVG_COST2>
  <OUT_DURATION>35</OUT_DURATION>
  <OUT_AVG_DURATION>35</OUT_AVG_DURATION>
  <OUT_COUNT>1</OUT_COUNT>
  <IN_COUNT>2</IN_COUNT>
  <IN_UNANSW_COUNT>0</IN_UNANSW_COUNT>
  <IN_DURATION>60</IN_DURATION>
  <IN_AVG_TIME>30</IN_AVG_TIME>
  <IN_RING_DURATION>6</IN_RING_DURATION>
  <IN_RING_AVG_DURATION>3</IN_RING_AVG_DURATION>
    <REF_CURRENCY>EUR</REF_CURRENCY>
</Table>
</NewDataSet>
</diffgr:diffgram>
</DataTable>
```

## Error output example

```
<?xml version="1.0" encoding="utf-8"?>
<DataTable xmlns="http://www.telcen.it/ws">
  <xs:schema id="NewDataSet" xmlns="" xmlns:xs="http://www.w3.org/2001/XMLSchema"
xmlns:msdata="urn:schemas-microsoft-com:xml-msdata">
  <xs:element name="NewDataSet" msdata:IsDataSet="true" msdata:MainDataTable="ERROR"
msdata:UseCurrentLocale="true">
    <xs:complexType>
      <xs:choice minOccurs="0" maxOccurs="unbounded">
        <xs:element name="ERROR">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="MESSAGE" type="xs:string" minOccurs="0" />
            </xs:sequence>
          </xs:complexType>
        </xs:element>
      </xs:choice>
    </xs:complexType>
  </xs:element>
</xs:schema>
<diffgr:diffgram xmlns:msdata="urn:schemas-microsoft-com:xml-msdata" xmlns:diffgr="urn:schemas-microsoft-
com:xml-diffgram-v1">
  <DocumentElement xmlns="">
    <ERROR diffgr:id="ERROR1" msdata:rowOrder="0" diffgr:hasChanges="inserted">
      <MESSAGE>Access is denied due to invalid credentials</MESSAGE>
    </ERROR>
  </DocumentElement>
</diffgr:diffgram>
</DataTable>
```

## Tutorial

### How to use Call Analytics Web Services with Microsoft Visual Studio 2005

In order to use Call Analytics Web Services, please follow here under steps.

#### Download WSDL file

WSDL file (Web Service Description Language) provides a description of the web service functions and allows the development to creating the objects required to the service use.

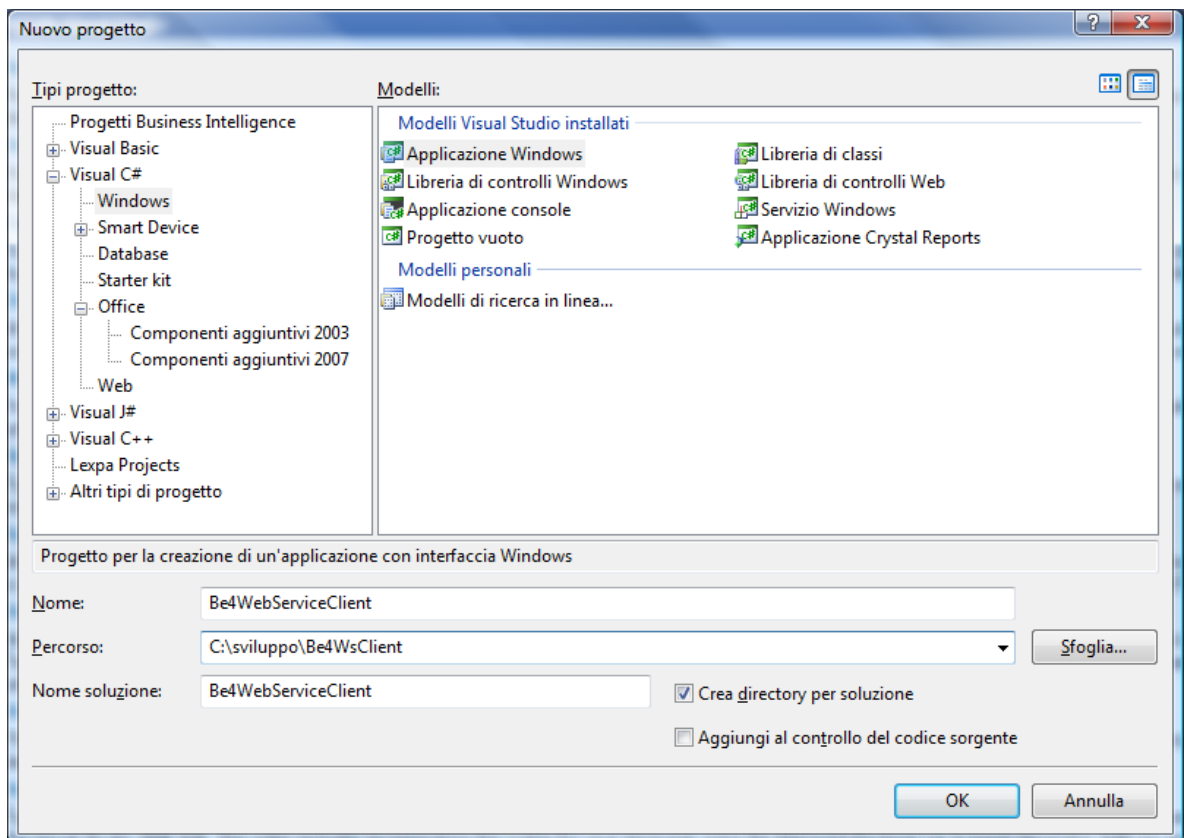
Visual Studio programming languages use web services through objects acting as intermediaries for server processes. Before such objects can be used it is necessary that they are generated using the WSDL file.

#### Note

Before starting, create a new applications and import a WSDL file reference.

An application that uses web services may not necessarily be a Client type application. Many times web services are used by other Web applications or services without graphic interface interpreting the XML generated by the web service.

#### Create a new Windows Application Project

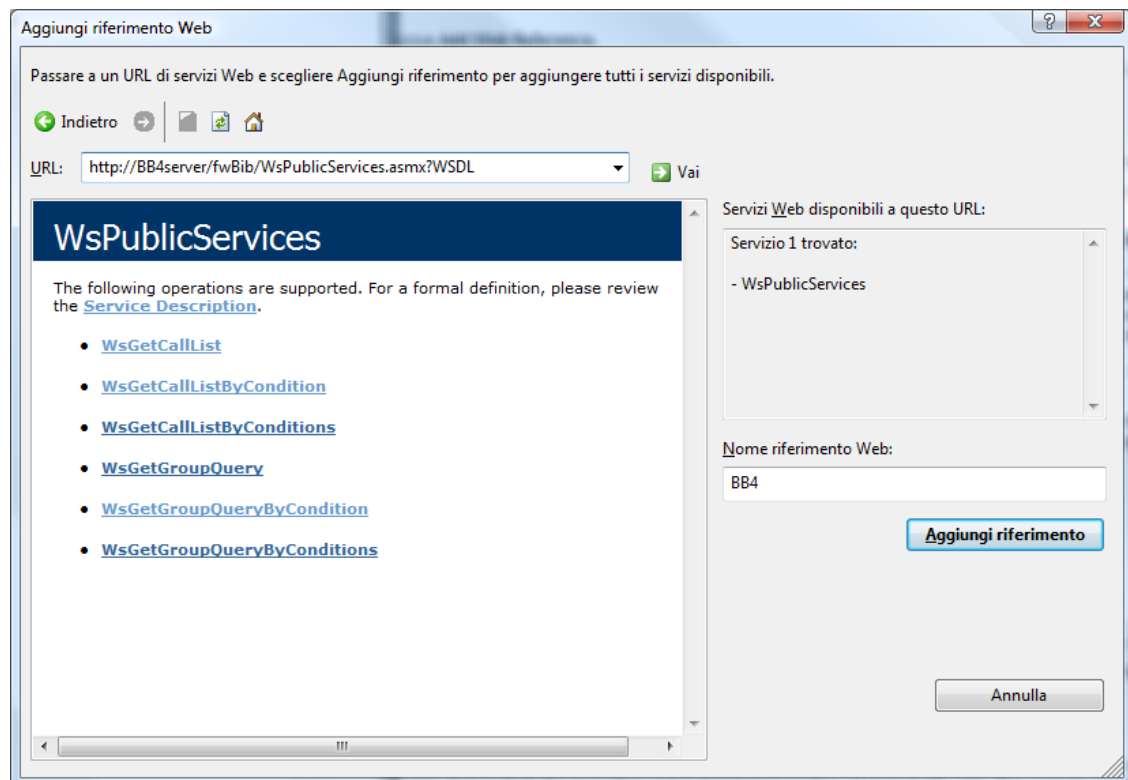


## Adding a reference

Add a new web reference to the address

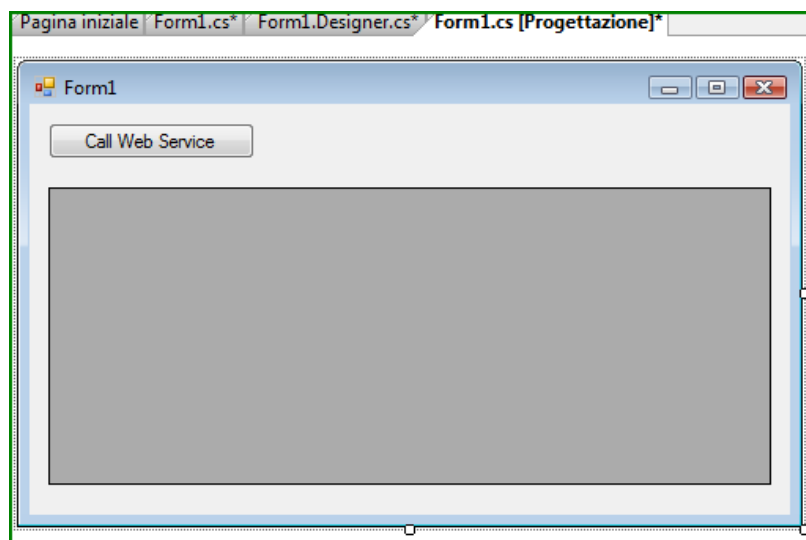
[http://Call\\_Analyticsserver/fwBib/WsPublicServices.asmx?WSDL](http://Call_Analyticsserver/fwBib/WsPublicServices.asmx?WSDL)

Change the web reference name to Call Analytics.



## Adding controls

Add a 'Button' and a 'dataGridView' type control to the main window





In the form code, add string

```
using Call AnalyticsWebServiceClient;
```

Double click the button and enter the following code:

```
private void button1_Click(object sender, EventArgs e)
{
    Call Analytics.WsPublicServices ws = new Call Analytics.WsPublicServices();

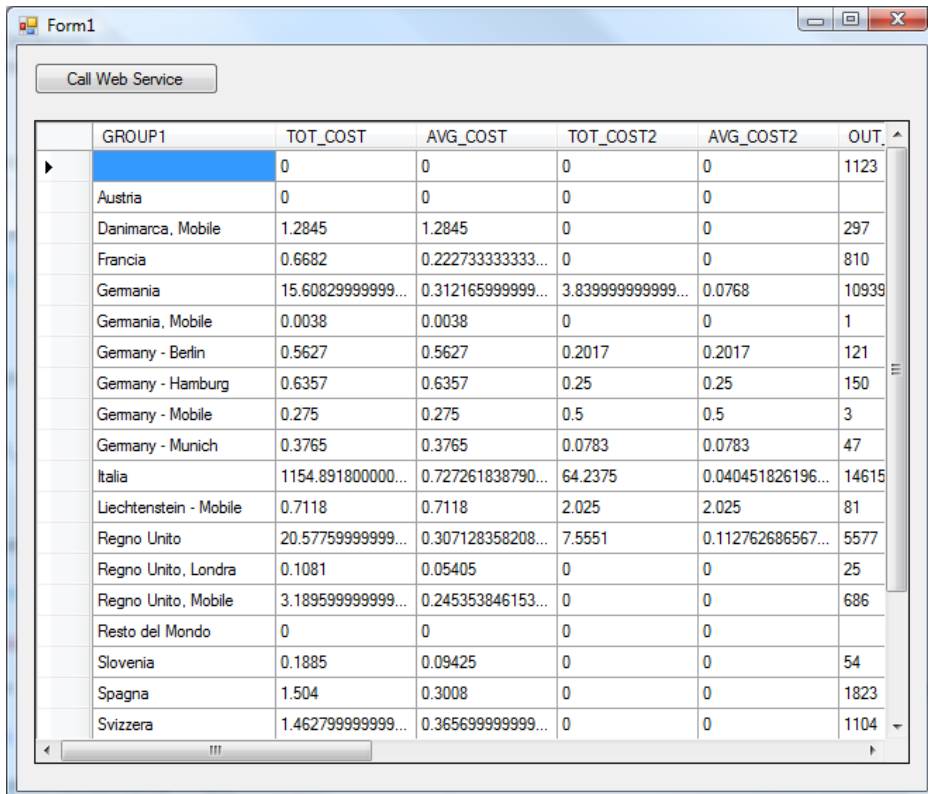
    ws.Url = "http://Call Analyticsserver/fwBib/WsPublicServices.asmx?WSDL";

    DataTable dt = ws.WsGetGroupQuery("blues", "blues", Call Analytics.enPeriodType.LAST_MONTH, Call
Analytics.enFieldsForGroup.COUNTRY);

    if (dt != null && dt.Rows.Count > 0)
    {
        dataGridView1.DataSource = dt;
        dataGridView1.AutoGenerateColumns = true;
        dataGridView1.Refresh();
    }
}
```

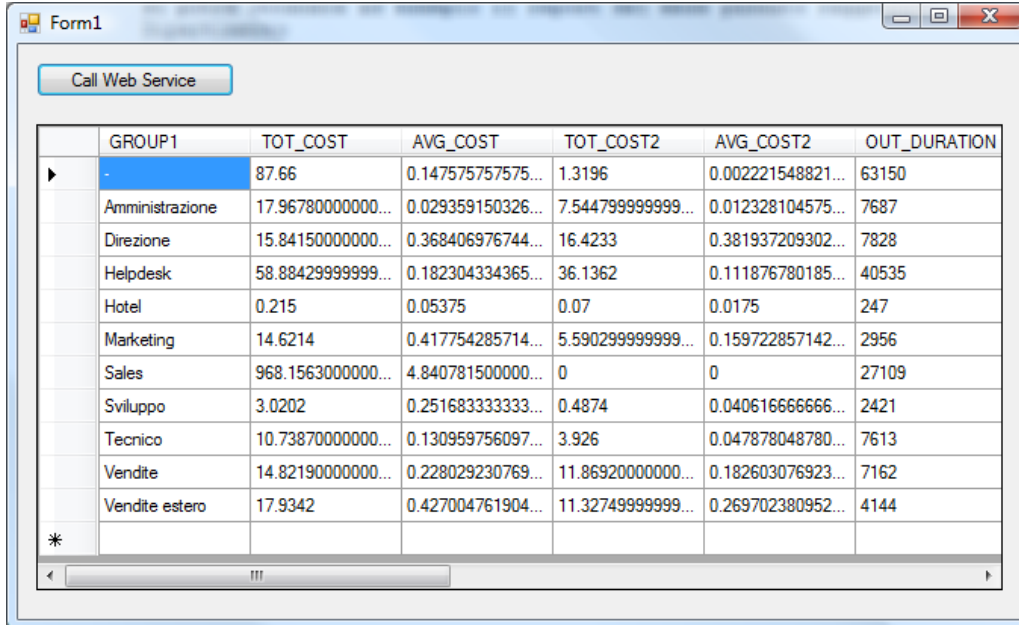
## Run the program

Run the program (F5 key) and click 'Call Web Service', if the server is available, a table will display last month call grouped by Country (Call Analytics.enFieldsForGroup.COUNTRY)



	GROUP1	TOT_COST	AVG_COST	TOT_COST2	AVG_COST2	OUT
		0	0	0	0	1123
	Austria	0	0	0	0	
	Danimarca, Mobile	1.2845	1.2845	0	0	297
	Francia	0.6682	0.222733333333...	0	0	810
	Germania	15.60829999999...	0.312165999999...	3.839999999999...	0.0768	10939
	Germania, Mobile	0.0038	0.0038	0	0	1
	Germany - Berlin	0.5627	0.5627	0.2017	0.2017	121
	Germany - Hamburg	0.6357	0.6357	0.25	0.25	150
	Germany - Mobile	0.275	0.275	0.5	0.5	3
	Germany - Munich	0.3765	0.3765	0.0783	0.0783	47
	Italia	1154.891800000...	0.727261838790...	64.2375	0.040451826196...	14615
	Liechtenstein - Mobile	0.7118	0.7118	2.025	2.025	81
	Regno Unito	20.57759999999...	0.307128358208...	7.5551	0.112762686567...	5577
	Regno Unito, Londra	0.1081	0.05405	0	0	25
	Regno Unito, Mobile	3.18959999999...	0.245353846153...	0	0	686
	Resto del Mondo	0	0	0	0	
	Slovenia	0.1885	0.09425	0	0	54
	Spagna	1.504	0.3008	0	0	1823
	Svizzera	1.46279999999...	0.36569999999...	0	0	1104

Modify the code and add Call Analytics.enFieldsForGroup.DEP value in place of Call Analytics.enFieldsForGroup.COUNTRY to get, for example, last month report grouped by department.



	GROUP1	TOT_COST	AVG_COST	TOT_COST2	AVG_COST2	OUT_DURATION
▶	-	87.66	0.1475757575...	1.3196	0.002221548821...	63150
	Amministrazione	17.9678000000...	0.029359150326...	7.544799999999...	0.012328104575...	7687
	Direzione	15.8415000000...	0.368406976744...	16.4233	0.381937209302...	7828
	Helpdesk	58.88429999999...	0.182304334365...	36.1362	0.111876780185...	40535
	Hotel	0.215	0.05375	0.07	0.0175	247
	Marketing	14.6214	0.417754285714...	5.590299999999...	0.159722857142...	2956
	Sales	968.1563000000...	4.840781500000...	0	0	27109
	Sviluppo	3.0202	0.251683333333...	0.4874	0.040616666666...	2421
	Tecnico	10.7387000000...	0.130959756097...	3.926	0.047878048780...	7613
	Vendite	14.8219000000...	0.228029230769...	11.8692000000...	0.182603076923...	7162
	Vendite estero	17.9342	0.427004761904...	11.32749999999...	0.269702380952...	4144
*						

## Contact us for all your needs

In case you need support, you can contact Imagicle Tech Support at +39 0584.943232 (Monday – Friday 8:30 – 12:30 and 14:00 - 18:00) or via email to [support@imagicle.com](mailto:support@imagicle.com).