



# DOTS GeoPhone

Developer's Guide

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## Introduction

DOTS GeoPhone (referred to as “GeoPhone” or “GP”) is a publicly available XML web service that provides reverse phone lookup information about a US (or sometimes Canadian) phone number. The service provides name, address, city and state, along with carrier exchange information.

GeoPhone can provide instant reverse-phone lookup verification to websites or data enhancement to contact lists. However, the output from GP must be considered carefully before the existence or non-existence of a given phone number is decided.

## Web Service Structure

Web services are methods that integrate with other applications via the web, and encapsulate tricky business logic. Web services are too large of a topic to cover in this document, but ServiceObjects has developed its web services to be as easy to integrate and as accessible as possible.

GeoPhone is a public XML web service that supports SOAP, POST and GET operations. Note that SOAP is done via POST, only with special XML markup in the post-body.

The host path, or physical location of the web service is here:

<http://trial.serviceobjects.com/gp/GeoPhone.aspx>

The location of the WSDL, or Web Service Definition Language document, is here:

<http://trial.serviceobjects.com/gp/GeoPhone.aspx?WSDL>

(This is also accessible via the “Service Definition” link.)

This WSDL is the definition of the web service, meaning its inputs, outputs, operations, and the like. Most likely, you will have another tool read this WSDL and make the operations available to you in your application. Whenever your utilities or IDE asks for a WSDL path to GeoPhone, you can provide this one.

Every web service has *operations* that it offers to subscribers – methods that do different work and return different output. Examining the link above, you will notice several of these operations available, which are described in detail later on.

**GetPhoneInfo** – returns the reverse-phone lookup information about a given phone number, including the name, address, city and state (contact information) and the carrier name, city, state and line type (exchange information.)

**GetExchangeInfo** – like GetPhoneInfo, but only returns the exchange information, omitting all of the contact information.

**GetContactInfo** – like GetPhoneInfo, but only returns the contact information, omitting all of the exchange information.

**GetPhoneInfoLastFirst** – Identical to GetPhoneInfo, but returns residential contact names in the format: Lastname, Firstname.

**GetPhoneInfo\_V2** – A new version of GetPhoneInfo that adds several new elements including: VOIP line type, Latitude, Longitude and a Quality flag.

Each of these operations will be described in detail later in this document.

## Operation Definitions

This document defines the input, output and behavior of the web service operations in GeoPhone. Each operation has its own unique behavior and output, although all of the operations are very similar.

### **Important Note!**

Reverse-phone lookups are subject to federal rules determining who can procure data, and for what purpose. Currently, both disconnected and unlisted numbers return no contact information, and there are no public datasets regarding wireless numbers. GeoPhone returns contact information for connected landline phone numbers. Even in the cases that the phone number is disconnected or wireless, GeoPhone will commonly return the exchange information.

GeoPhone can provide information regarding Canadian phone numbers, although GeoPhone's Canadian data is not as comprehensive as its US information.

You should examine your own business needs first before exploring what GeoPhone can provide. Different operations may be necessary based on the information you have, and the granularity of data you need.

## GetPhoneInfo

This is the basic operation for finding the reverse-lookup information. Given a phone number, will consult national directory-assistance databases to find the owner and address registered.

The addresses returned are not validated via any address-validation technique. They are returned to you exactly as the phone carrier releases them. If you need these addresses to be validated, using ServiceObjects' AddressValidation web services is highly recommended.

Both the contact's information and the phone company's information are returned with this operation. The other operations in this service return the same data, but pared down.

Two valuable bits of information are also retrieved – whether the phone line is for business or residential purposes, and whether the phone line is landline or wireless.

By examining the WSDL, you may see that multiple groups of contact/exchange information are possible. Although they are possible in the XML, you will only see one exchange per output, always. It is common, however, to see multiple contacts per phone number (as people change numbers, or there may be multiple businesses at the same phone number.) It is highly recommended that you handle each of these contacts, rather than just the first contact returned.

### GetPhoneInfo Inputs

Name	Type	Description
PhoneNumber	String	Phone number to look up, for example, "805-963-1700"
LicenseKey	String	Your license key to use the service. Sign up for a free trial key at <a href="http://www.serviceobjects.com">www.serviceobjects.com</a> .

### GetPhoneInfo Outputs

Name	Type	Values	Description
Name (Provider)	String	Varies	The name of the line carrier of the phone number ("AT&T")
City (Provider)	String	Varies	The city location of the carrier's exchange ("New York")
State (Provider)	String	Varies	The state location of the carrier's exchange ("NY")
LineType	String	Landline /	The type of the phone line, can

(Provider)		Wireless / Unknown	either be "Landline" or "Wireless"
Name (Contact)	String	Varies	The name that the phone line is registered to. Can either be a person ("John Doe") or a business ("Doe Corporation")
Address (Contact)	String	Varies	The street address to which the phone line is registered
City (Contact)	String	Varies	The city to which the phone line is registered
State (Contact)	String	Varies	The state to which the phone line is registered
Zip (Contact)	String	Varies	The zip code to which the phone line is registered
Type (Contact)	String	Residential / Business / Unknown	The type of entity that owns the phone line, will be either "Residential" or "Business"
Error – Desc	String	Varies	If there was an internal web service error, the description will be displayed here.
Error – Number	String	"1", "2", "4"	See "Error Codes" below.
Error -- Location	String	Always null	Deprecated, no longer used.

### GetExchangeInfo

This operation is almost exactly like GetPhoneInfo, but only returns only the information regarding the phone carrier.

Although the WSDL may suggest that contact information may be given by this operation, this is not the case; contact information will never be returned.

### GetExchangeInfo Inputs

Name	Type	Description
PhoneNumber	String	The phone number to be used for reverse-lookup information.
LicenseKey	String	Your license key to use the service. Sign up for a free trial key at <a href="http://www.serviceobjects.com">www.serviceobjects.com</a> .

### GetExchangeInfo Outputs

Name	Type	Values	Description
Name (Provider)	String	Varies	The name of the line carrier of the phone number ("AT&T")

City (Provider)	String	Varies	The city location of the carrier's exchange ("New York")
State (Provider)	String	Varies	The state location of the carrier's exchange ("NY")
LineType (Provider)	String	Landline / Wireless / Unknown	The type of the phone line, can either be "Landline" or "Wireless"
Error – Desc	String	Varies	If there was an internal web service error, the description will be displayed here.
Error – Number	String	"1", "2", "4"	See "Error Codes" below.
Error -- Location	String	Always null	Deprecated, no longer used.

### GetContactInfo

This operation is almost exactly like GetPhoneInfo, but only returns only the information regarding the contact to which the phone is registered.

Although the WSDL may suggest that carrier information may be given by this operation, this is not the case; carrier information will never be returned.

### GetContactInfo Inputs

Name	Type	Description
PhoneNumber	String	The phone number to be used for reverse-lookup information.
LicenseKey	String	Your license key to use the service. Sign up for a free trial key at <a href="http://www.serviceobjects.com">www.serviceobjects.com</a> .

### GetContactInfo Outputs

Name	Type	Values	Description
Name (Contact)	String	Varies	The name that the phone line is registered to. Can either be a person ("John Doe") or a business ("Doe Corporation")
Address (Contact)	String	Varies	The street address to which the phone line is registered
City (Contact)	String	Varies	The city to which the phone line is registered
State (Contact)	String	Varies	The state to which the phone line is registered

Zip (Contact)	String	Varies	The zip code to which the phone line is registered
Type (Contact)	String	Residential / Business / Unknown	The type of entity that owns the phone line, will be either "Residential" or "Business"
Error – Desc	String	Varies	If there was an internal web service error, the description will be displayed here.
Error – Number	String	"1", "2", "4"	See "Error Codes" below.
Error -- Location	String	Always null	Deprecated, no longer used.

### **GetPhoneInfoLastFirst**

This is the basic operation for finding the reverse-lookup information. Given a phone number, will consult national directory-assistance databases to find the owner and address registered.

The addresses returned are not validated via any address-validation technique. They are returned to you exactly as the phone carrier releases them. If you need these addresses to be validated, using ServiceObjects' AddressValidation web services is highly recommended.

Both the contact's information and the phone company's information are returned with this operation. The other operations in this service return the same data, but pared down. This operation reverses the contacts name if the contact is residential (ie it returns name as Last,First).

Two valuable bits of information are also retrieved – whether the phone line is for business or residential purposes, and whether the phone line is landline or wireless.

By examining the WSDL, you may see that multiple groups of contact/exchange information are possible. Although they are possible in the XML, you will only see one exchange per output, always. It is common, however, to see multiple contacts per phone number (as people change numbers, or there may be multiple businesses at the same phone number.) It is highly recommended that you handle each of these contacts, rather than just the first contact returned.

### GetPhoneInfoLastFirst Inputs

Name	Type	Description
PhoneNumber	String	Phone number to look up, for example, "805-963-1700"
LicenseKey	String	Your license key to use the service. Sign up for a free trial key at <a href="http://www.serviceobjects.com">www.serviceobjects.com</a> .

### GetPhoneInfoLastFirst Outputs

Name	Type	Values	Description
Name (Provider)	String	Varies	The name of the line carrier of the phone number ("AT&T")
City (Provider)	String	Varies	The city location of the carrier's exchange ("New York")
State (Provider)	String	Varies	The state location of the carrier's exchange ("NY")
LineType (Provider)	String	Landline / Wireless / Unknown	The type of the phone line, can either be "Landline" or "Wireless"
Name (Contact)	String	Varies	The name that the phone line is registered to. Can either be a person ("Doe, John") or a business ("Doe Corporation")
Address (Contact)	String	Varies	The street address to which the phone line is registered
City (Contact)	String	Varies	The city to which the phone line is registered
State (Contact)	String	Varies	The state to which the phone line is registered
Zip (Contact)	String	Varies	The zip code to which the phone line is registered
Type (Contact)	String	Residential / Business / Unknown	The type of entity that owns the phone line, will be either "Residential" or "Business"
Error – Desc	String	Varies	If there was an internal web service error, the description will be displayed here.
Error – Number	String	"1", "2", "4"	See "Error Codes" below.
Error -- Location	String	Always null	Deprecated, no longer used.

## GetPhoneInfo\_V2

This is an improved version of the basic GetPhoneInfo operation. Given a phone number, will consult national directory-assistance databases to find the owner and address registered.

The addresses returned are not validated via any address-validation technique. They are returned to you exactly as the phone carrier releases them. If you need these addresses to be validated, using ServiceObjects' AddressValidation web services is highly recommended.

Both the contact's information and the phone company's information are returned with this operation. The other operations in this service return the same data, but pared down.

Two valuable bits of information are also retrieved – whether the phone line is for business or residential purposes, and whether the phone line is landline, wireless or voip.

Unique to this operation, latitude and longitude are returned. Coordinates are city centroids (ie the center points of the city the number is found in), but in most cases this is tied to a smaller area (for example, it's the center of a suburb of a bigger city).

Finally, also new is the quality field. Currently all contacts will be returned as HIGH quality. Current contact data is updated daily and is very accurate. We may add additional data sources in the future that would supplement these results. These additional sources may not be as “fresh” or reliable as our current ones and would be given lower quality ratings.

By examining the WSDL, you may see that multiple groups of contact/exchange information are possible. Although they are possible in the XML, you will only see one exchange per output, always. It is common, however, to see multiple contacts per phone number (as people change numbers, or there may be multiple businesses at the same phone number.) It is highly recommended that you handle each of these contacts, rather than just the first contact returned.

### GetPhoneInfo\_V2 Inputs

Name	Type	Description
PhoneNumber	String	Phone number to look up, for example, “805-963-1700”
LicenseKey	String	Your license key to use the service. Sign up for a free trial key at <a href="http://www.serviceobjects.com">www.serviceobjects.com</a> .

## GetPhoneInfo\_V2 Outputs

Name	Type	Values	Description
Name (Provider)	String	Varies	The name of the line carrier of the phone number (“AT&T”)
City (Provider)	String	Varies	The city location of the carrier’s exchange (“New York”)
State (Provider)	String	Varies	The state location of the carrier’s exchange (“NY”)
LineType (Provider)	String	LANDLINE, WIRELESS, UNKNOWN	The type of the phone line, can either be “Landline” or “Wireless”
Latitude (Provider)	String	Varies	The latitude coordinate for the phone number
Longitude (Provider)	String	Varies	The longitude coordinate for the phone number
Quality	String	HIGH, MEDIUM, LOW	This field is not currently used as all data sources are considered high quality. In the future there may be “other” sources that may not be as reliable.
Name (Contact)	String	Varies	The name that the phone line is registered to. Can either be a person (“John Doe”) or a business (“Doe Corporation”)
Address (Contact)	String	Varies	The street address to which the phone line is registered
City (Contact)	String	Varies	The city to which the phone line is registered
State (Contact)	String	Varies	The state to which the phone line is registered
Zip (Contact)	String	Varies	The zip code to which the phone line is registered
Type (Contact)	String	RESIDENTIAL, BUSINESS, UNKNOWN	The type of entity that owns the phone line, will be either “Residential” or “Business”
Error – Desc	String	Varies	If there was an internal web service error, the description will be displayed here.
Error – Number	String	“1”, “2”, “4”	See “Error Codes” below.
Error -- Location	String	Always null	Deprecated, no longer used.

## Error Codes

Error codes in GeoPhone are the same for all operations. They are as follows:

Error Code 1 – “Input cannot be less than zero length”

This error means the web service did not get any input. The connection to the service was made, and data was transferred, but no parameters were passed that the service could understand.

This error often happens when input is passed to the service with namespaces that the service does not understand. Applying a namespace to any of the parameters (Email or LicenseKey, in this service) will cause this error. Additionally, requests made in the “rpc/encoded” format will cause this error. The only namespace that should appear in any element is the [“http://www.serviceobjects.com”](http://www.serviceobjects.com) namespace on the root ValidateEmail element as so:

```
<GetPhoneInfo xmlns="http://www.serviceobjects.com/">
```

**Note, however, that the namespace is not applied to the GetPhoneInfo element, it is only present.**

Error Code 2 – Various descriptions

This error code appears when various errors occur, but are of the expected nature. Oftentimes, malformed or incomplete input will cause an error 2.

Error Code 4 – Various descriptions

An error code 4 is a fatal error and it means something has seriously gone wrong. You should never see an error code 4 in a live production environment.

## Integration and FAQ

Integrating GeoPhone into your application should be easy and straightforward. If you are using a common platform, ServiceObjects may already have sample code built that you can use:

[http://www.serviceobjects.com/support/dots\\_example\\_code.asp](http://www.serviceobjects.com/support/dots_example_code.asp)

However, if you are using a common platform that does not already have sample code, you can ask ServiceObjects to build you an example. Email [support@serviceobjects.com](mailto:support@serviceobjects.com) for more details.

### **Which Operation Should You Use? GetPhoneInfo, GetExchangeInfo or GetContactInfo?**

Picking which operation you want to use should be decided carefully. Depending on your environment and needs, you will need to use different operations for their corresponding strengths.

Typically, most users find that GetPhoneInfo is the most useful of the operations, as sometimes the exchange information is valuable to have in the case that the phone number was unlisted or wireless; you can still obtain the general area of where the phone number resides.

The best suggestion is to try out each of the operations to find the data you need.

### **Why are there operations that end with a V2?**

When we need to enhance our service that includes the changing of either the input or output interfaces, its best to create a new operation. If we change the interface of an existing operation, we potentially adversely affect hundreds of current customers.

If you are a new client or in a position to make a change, its usually always best to switch to the new operation as it likely has important new enhancements.

### **The Sample Code is Giving Strange Errors or is Crashing!**

Most likely, the sample code cannot connect to ServiceObjects. Many environments will not allow you to connect out on port 80, or will clip out XML data from these requests/responses.

The easiest way to check for this is to open a browser on the machine running the sample code. In your browser, navigate to:

<http://trial.serviceobjects.com/gp/GeoPhone.asmx>

Then try to run one of the operations with your trial key. If you get a browser error, or get no data back, then the sample code isn't able to connect, either. Contact your systems administrator to resolve why you are not able to connect to ServiceObjects.

### **GeoPhone doesn't find any data for my phone number!**

If your phone number is unlisted, by law, it cannot find any contact information for your number. Additionally, if your number is for a cellular phone, it cannot find that contact information either. If it does not return any information for the exchange, then you may have mistyped your phone number. A valid phone number will always return exchange information, whether it is wireless or landline, connected or disconnected.

### **GeoPhone is giving someone else's information for my phone number!**

GeoPhone's data is updated constantly. In the case that you just changed your number, it probably just has not been updated since you made the change. Sometimes phone companies take their time in publishing updates.

If the information is not accurate, and the given phone number has not recently changed ownership, please let us know at [support@serviceobjects.com](mailto:support@serviceobjects.com).

### **Can GeoPhone give me the information for a disconnected number?**

No, although we are working on procuring this information. If you are interested in using this data, please contact us at [support@serviceobjects.com](mailto:support@serviceobjects.com), and we will let you know when that has been implemented.

### **Can GeoPhone give me the information for a cell phone or wireless number?**

No. This information was somewhat restricted until recently, and even those databases that are currently available do not cover every wireless number in the US. We are also in the process of procuring this information, and will keep you updated if you are interested.

### **Can GeoPhone give me the information for a Canadian phone number?**

Yes – sometimes. Our dataset for Canada isn't as extensive as our dataset for the US, but GeoPhone returns information for Canadian phone numbers.

**I'm seeing multiple contacts at a single phone number. Who is really going to pick up the phone?**

Honestly, any one of them! Typically, this means that multiple people are registered at that phone number, which happens with many small businesses. Oftentimes, when you call that number, you will get an operator or switch where you can ask for the person you're looking for. If the phone number resolves to a residential address, all of the contacts may be roommates.

If you need to verify that a particular person is at that phone number, simply search for that person in the list of contacts. They are not in any particular order when they are returned.

**I see a flag called Quality being returned but it's always set to "HIGH". What does this mean?**

This flag was added because when the v2 operation was created, ServiceObjects was investigating alternative data sources that may not be as reliable. If a less reliable data source was used, we would want a way to note that. There are currently no plans to add new lower quality data sources.

**I don't care so much about who is at the phone number. I care more about whether the phone number is real or not. What should I do?**

You have several options. You can either check for the presence of exchange data (valid phone numbers always return exchange information) or integrate ServiceObjects' PhoneExchange web service, which was built expressly for this purpose. Find out more about PhoneExchange here:

[http://www.serviceobjects.com/products/dots\\_phone\\_exchange.asp](http://www.serviceobjects.com/products/dots_phone_exchange.asp)

**I'm Not a Programmer. How Do I Use DOTS GeoPhone?**

ServiceObjects runs batches for you! A free batch trial is available at <http://www.serviceobjects.com/batch/signup1.asp>.

## Conclusion

ServiceObjects is proud to offer you a free trial of DOTS GeoPhone US.

Sign up today for a free trial at:

[http://www.serviceobjects.com/products/dots\\_geophone.asp](http://www.serviceobjects.com/products/dots_geophone.asp)

Other technical questions or concerns can be directed to [support@serviceobjects.com](mailto:support@serviceobjects.com).

If you are interested in purchasing DOTS GeoPhone, please contact [sales@serviceobjects.com](mailto:sales@serviceobjects.com).

We welcome your feedback! Please do not hesitate to let us know what you think of our web services, documentation, or customer support.

[www.serviceobjects.com](http://www.serviceobjects.com)