

# Spectrum Technology Platform

Version 10.0 SP1

Geocoding Guide for Austria - SOAP

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## GeocodeAddressGlobal

GeocodeAddressGlobal provides street-level geocoding for many countries. It can also determine city or locality centroids, as well as postal code centroids. GeocodeAddressGlobal handles street addresses in the native language and format. For example, a typical French formatted address might have a street name of Rue des Remparts. A typical German formatted address could have a street name Bahnhofstrasse.

**Note:** GeocodeAddressGlobal does not support U.S. or U.K. addresses. To geocode U.S. addresses, use GeocodeUSAddress. To geocode U.K. addresses, use GeocodeAddressGBR.

The countries available to you depends on which country databases you have installed. For example, if you have databases for Canada, Italy, and Australia installed, GeocodeAddressGlobal would be able to geocode addresses in these countries in a single stage. Before you can work with GeocodeAddressGlobal, you must define a global database resource containing a database for one or more countries. Once you create the database resource, a GeocodeAddressGlobal will become available in the Management Console, Enterprise Designer, and Interactive Driver.

GeocodeAddressGlobal is an optional component of the Enterprise Geocoding Module.

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# Input

GeocodeAddressGlobal takes an address or intersection as input. To obtain the best performance and the most possible matches, your input address lists should be as complete as possible, free of misspellings and incomplete addresses, and as close to postal authority standards as possible. Most postal authorities have websites that contain information about address standards for their particular country.

## Input Fields

To obtain the best performance and the most possible matches, your input address lists should be as complete as possible, free of misspellings and incomplete addresses, and as close to postal authority standards as possible. Most postal authorities have websites that contain information about address standards for their particular country.

The following table lists the input fields used for geocoding locations in Austria.

**Table 1: Input Fields for Austria**

| Parameter    | Description  |
|--------------|--|
| AddressLine1 | <p>One of the following:</p> <ul style="list-style-type: none"> <li>The address line containing the street name and building number. For example:<br/> <b>Florian 3</b><br/>           9020 Enthalpy in Kirsten</li> <li>This field can also contain the full address. For more information, see <a href="#">Single Line Input</a> on page 7</li> <li>For all countries except Argentina, Great Britain, and Japan, this field can contain a street intersection. To specify a street intersection, use double ampersand (&amp;&amp;) to separate the streets. For more information, see <a href="#">Street Intersection Input</a> on page 8.</li> </ul> |
| AddressLine2 | This field is not used in this country.  |
| City         | The city or town name. Your input address should use the official city name or alias. For Argentina, Austria, Bahamas, Czech Republic, Indonesia, Italy, Mexico,   |

| Parameter     | Description   |
|---------------|---|
|               | Portugal, Spain, Slovenia, and Switzerland, you may use the town alias. For example, Wien and Vienna are aliases and both names can be used on input. When you geocode, the input name is returned with the candidate. For example: if you use Wien on input, Wien is returned in the output. If you use Vienna on input, Vienna is returned in the output. |
| County        | <p>The meaning of county varies by country.</p> <ul style="list-style-type: none"> <li>AUT (Austria)—Province</li> </ul>  |
| FirmName      | A place name, such as a building name or company name.  |
| HouseNumber   | <p>The building number. You may get better parsing results for some countries if you put the house number in this field instead of AddressLine1. Not every country includes house number data.</p> <p><b>Note:</b> The house number specified in the HouseNumber field takes precedence over any house number specified in the AddressLine1 field.</p>      |
| LastLine      | <p>The last line of the address.</p> <ul style="list-style-type: none"> <li>Florian 3<br/><b>9020 Enthalpy in Kirsten</b></li> </ul>  |
| Locality      | <p>The meaning of locality varies by country. Generally a locality is a village in rural areas or it may be a suburb in urban areas. When used, a locality typically appears on the lastline of the address with the postcode.</p> <ul style="list-style-type: none"> <li>AUT (Austria)—Not used</li> </ul>   |
| PostalCode    | <p>The postal code in the appropriate format for the country.</p> <p>Austria uses a four-digit postal code system. The first two numbers indicate the sector and the last two numbers designate the delivery point within the sector.</p>   |
| StateProvince | <p>The meaning of State/Province varies by country.</p> <ul style="list-style-type: none"> <li>AUT (Austria)—Region</li> </ul>  |

## Address Input Guidelines

Follow these suggestions to ensure that your street input data is in the best format possible for optimal geocoding.

### Address Guidelines for Austria

Follow these guidelines to provide input that GeocodeAddressGlobal can successfully geocode. For additional information on Austrian addresses, see the Austria Post website: [www.post.at](http://www.post.at).

- **Required fields**—Addresses must contain either a city or a postal code.
- **State abbreviations**—State abbreviations are supported. The following table lists the Austrian states and their abbreviations.

|                  |       |
|------------------|-------|
| Burgenland       | Bgl   |
| Kärnten          | Ktn   |
| Niederösterreich | NÖ    |
| Oberösterreich   | OÖ    |
| Salzburg         | Sbg   |
| Steiermark       | Stm   |
| Tirol            | Tirol |
| Vorarlberg       | Vbg   |
| Wien             | Wien  |

- **Thoroughfare types**—Austrian thoroughfare types and their common abbreviations are recognized and fully supported on input and output.

- **Numbers, numeric equivalents, and ordinals**—Numbered streets are mapped to the named equivalents. Ordinals are also recognized in input addresses.
- **Common words and abbreviations**—Common words, directionals, house number indicators, and abbreviations used in addresses are recognized.

## Single Line Input

Instead of entering each address element in separate fields, you may enter the entire address in the AddressLine1 input field.

For all countries except Japan, you can enter addresses in one or more of these single-line formats.

**Note:** Not all formats work may work for every country.

```
StreetAddress;PostalCode;City
StreetAddress;City;PostalCode
StreetAddress;City
StreetAddress;City;StateProvince;PostalCode
StreetAddress;Locality
StreetAddress;County;City
PostalCode;StreetAddress
PostalCode;StreetAddress;City
City;PostalCode;StreetAddress
```

Where:

- *StreetAddress* can be house number and street name in either order (with street type immediately before or after the street name).
- *City* is the city or town.
- *Locality* is the locality name.
- *County* is the county (or ename).
- *PostalCode* is the complete postcode. For Brazil,

**Note:** Not all of these address elements are used in every country.

Other single-line formats may also be acceptable for many countries.

The matching accuracy for single line input is comparable to that of structured address input. The performance of single line input addresses may be slightly slower than that of structured address input.

For best results, use delimiters (comma, semicolon, or colon) between each address element. For example,

```
Alser Strasse 16,1090,Wien
```

If the input address is missing delimiters, spaces are recognized as separators and internal parsing rules identify address elements. In the example above, the address would still successfully geocode even if some or all of the delimiters were missing in the input.

**Note:** Non-delimited or partially-delimited single line addresses may take longer to geocode and may not produce the same results as delimited single line input. This is especially true for addresses with multi-word street names or cities. To optimize single line geocoding, use delimiters between address elements (particularly between street name and city).

Punctuation is ignored for geocoding purposes.

#### *Guidelines for Single Line Input*

- Punctuation is generally ignored, however you may improve results and performance by using separators (commas, semicolons, etc.) between different address elements.
- The country is not required. Each country geocoder assumes that the address is in its country.
- Firm information (placename, building name, or government building) is returned if available.

## Street Intersection Input

If you enter a street intersection as input, the geocoder will provide the coordinates of the intersection.

To enter an intersection, specify the two street names separated by a double ampersand (&&) in AddressLine1. For some countries, the word AND can also be used to delimit intersections. The && delimiter can be used for all countries. For example:

```
AddressLine1: Flurstraße && Batloggstraße  
PostalCode: 6780
```

**Note:** The double ampersand (&&) can always be used as a street intersection separator. For some countries, you can use additional symbols or words to delimit street intersections.

All close match criteria are enforced for intersection geocoding, just as for any street level geocoding.

## Address Range Input

Street range data represents a range of house numbers that can possibly exist but are not guaranteed to exist. For addresses derived from the Street Range Address database, house number matching is more relaxed compared to the G-NAF database. Also, the candidate house number may be changed based on how the input house number matches the suffix/range data.



The following table shows geocoding match results with house number ranges from a Street range data source:

| Input House Number | Candidate House Number Range | Candidate House Number | Match or Non-Match |
|--------------------|------------------------------|------------------------|--------------------|
| 10                 | 10-12                        | 10                     | Match              |
| 10A                | 10-12                        | 10                     | Match              |
| 10                 | 8-12                         | 10                     | Match              |
| 10-14              | 10-12                        | 10                     | Match              |
| 10-14              | 10-20                        | 10-14                  | Match              |
| 10                 | 12-16                        | 12                     | Non-Match          |

### *G-NAF Range Address Matching*

Australian addresses originating from the G-NAF database may contain house number ranges, but these records still represent single address delivery points. These range addresses may also have alphabetic suffixes. For example, the following house address numbers each represent a single address.

10-12 10A-10C 10-10A

GeocodeAddressAUS validates and geocodes these point source addresses. If the criteria are met and the reliability of the match is 1 or 2, GeocodeAddressAUS returns point matches with an S8 result code. See the description of the output field AUS.GNAF\_Reliability in [G-NAF Output](#) for information on reliability levels.

If a complete house number range/suffix is specified for input, candidates from a point data source must be fully matched. If partial house number information is given (without complete range or suffix information), then candidates with non-conflicting range/suffix information (or no range/suffix information) will match.

The following table shows geocoding match results with house number ranges from a point data source (G-NAF database.). The matching rules are based on the Address Matching Approval System (AMAS<sup>®</sup>) developed by Australia Post.

**Table 2: Range Match Results**

| Input House Number | Data House Number | Candidate House Number | Match or Non-Match  |
|--------------------|-------------------|------------------------|---|
| 10                 | 10A               | 10A                    | Match: Input number 10 matches 10A (or 10 with any suffix).   |
| 10A                | 10                | 10                     | Match: Input number 10 matches.   |
| 10C                | 10A               | 10A                    | Non-Match: Input suffix does not match the data suffix.   |
| 10                 | 10-12             | 10-12                  | Match: Input number 10 matches the first number of the dashed data range.   |
| 12                 | 10-12             | 10-12                  | Match: Input number 12 matches the last number of the dashed data range.  |
| 10A                | 10-12             | 10-12                  | Match: Input number 10 matches the first number of the dashed data range. Input suffix is not in data, but this does not affect matching. |
| 12                 | 10-14             | 10-14                  | Non-Match. Input number 12 does not match either number of the dashed data range. No interpolation is performed on a house number ranges. |
| 10-12              | 10-14             | 10-14                  | Match: First input number 10 matches the first number of the data and the second number 12 is within the data range.                      |
| 10-12              | 10A-14A           | 10A-14A                | Match: The input has no suffix information, but the input number 10 matches.  |
| 10-16              | 10-12             | 10-12                  | Non Match: Input second number 16 is outside the 10-12 data range.  |

| Input House Number | Data House Number | Candidate House Number | Match or Non-Match   |
|--------------------|-------------------|------------------------|--|
| 10-13              | 10-14             | 10-14                  | Non-Match: Both input numbers are within data range, but second number (13) is odd and this does not match with the even range of 10-14. |
| 10-13              | 10-15             | 10-15                  | Match: Data range (10-15) suggests a mixed odd/even range, so input is matched.  |
| RMB 10             | 10                | 10                     | Match: Input number matches  |
| 16                 | A16               | A16                    | Match: Input number matches  |
| RMB 10             | A10               | A10                    | Non Match: Input suffix does not match the data suffix.  |

## Specifying Unit Information in an Address

When you use the G-NAF database, the geocoder recognizes several formats of unit types (such as unit, suite, floor, and flat address prefix) in an address, as illustrated below:

- "Unit 5 6 Macleay Street"—Full unit description used in conjunction with unit value and address number.
- "U 5 6 Macleay Street"—Abbreviated unit description used in conjunction with unit value and address number.
- "5/6 Macleay Street"—No Unit abbreviation with unit number and address number separated by a forward slash notation.

Exact matches on unit and address are placed first in the list of returned candidates.

## Specifying Level Information in an Address

If you use the G-NAF database the geocoder can return level information for some addresses. Level information identifies the floor or level of a multi-storey building. The G-NAF database includes level

information for some states. Level information may be associated with unit information, but not necessarily. If the G-NAF database contains multiple records with the same level, the level information is returned only if the input address contains unique content (such as a unit number).

If the G-NAF database has level information for an address, the geocoder returns that information with the matched candidate. The correct level information is returned (when available) even if the input address did not include level information, or if the input had the wrong level information.

If the input address has level information but the G-NAF database does not include level information for the matching address, then the input level information is discarded since it is not validated in the G-NAF data.

Following are several examples of partial addresses that contain level information. The level information is indicated in bold.

Suite 3 **Level 7**, 17 Jones Street (Suite 3 is a unit)

**Floor 2**, 17 Jones Street

**Level 7**, 17-19 Middleborough Road

## Geocode Address Global Options

Geocode Address Global includes geocoding, matching, and data options.

### Geocoding Options

The following table lists the options that control how a location's coordinates are determined.

**Table 3: Geocoding Options for Austria**

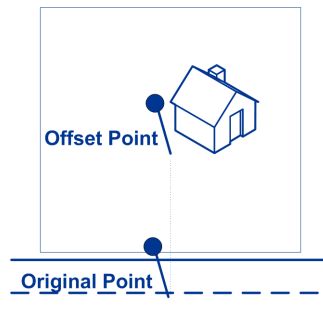
| Parameter    | Description   |
|--------------|---|
| GeocodeLevel | Specifies how precisely you want to geocode addresses. One of the following: <ul style="list-style-type: none"> <li><b>StreetAddress</b> The geocoder attempts to geocode addresses to a street address, but some matches may end up at a less precise location such as a postal code centroid, intersection, or shape path.</li> <li><b>PostalCentroid</b> If postal code data is available, the geocoder attempts to geocode addresses to the most precise postal code it finds. The advantage of postal code centroid matching is the</li> </ul> |

| Parameter            | Description          |  |
|----------------------|----------------------|--|
|                      |                      | <p>speed of the operation. The disadvantage of postal code matching is that the geocoder only examines the PostalCode field. If you use street address precision, the geocoder looks at both the street name and the PostalCode field and attempts to return street-level coordinates and optionally fall back to postal code coordinates.</p> <p><b>GeographicCentroid</b> The geocoder attempts to geocode addresses to the geographic centroid of a city or state.</p>  |
| Interpolation        | <b>Y</b><br><b>N</b> | <p>Yes, perform address point interpolation.</p> <p>No, do not perform address point interpolation.</p>  |
| FallbackToGeographic |                      | <p>Specifies whether to attempt to determine a geographic region centroid when an address-level geocode cannot be determined.</p> <p><b>Y</b> Yes, determine a geographic centroid when an address-level centroid cannot be determined. Default.</p> <p><b>N</b> No, do not determine a geographic centroid when an address-level centroid cannot be determined.</p>   |
| FallbackToPostal     |                      | <p>Specifies whether to attempt to determine a postal code centroid when an address-level geocode cannot be determined.</p> <p><b>Y</b> Yes, determine a postal code centroid when an address-level centroid cannot be determined. Default.</p> <p><b>N</b> No, do not determine a postal code centroid when an address-level centroid cannot be determined.</p>   |
| OffsetFromStreet     |                      | <p>Indicates the offset distance from the street segments to use in street-level geocoding. The distance is specified in the units you specify in the OffsetUnits option.</p> <p>The default value varies by country. For most countries, the default is 7 meters. For Austria, Germany, and Australia the default is 10 meters.</p> <p>The offset distance is used in street-level geocoding to prevent the geocode from being in the middle of a street. It compensates for the fact that street-level geocoding returns a latitude and longitude point in the center of the street where the address is located. Since the building represented by an address is not on the street itself, you do not want the geocode for an address to be a point on the street. Instead, you want the geocode to represent the location of the building which sits next to the street. For example, an offset of 50 feet means that the geocode will represent</p> |

## Parameter

## Description

a point 50 feet back from the center of the street. The distance is calculated perpendicular to the portion of the street segment for the address. Offset is also used to prevent addresses across the street from each other from being given the same point. The following diagram shows an offset point in relation to the original point.



Street coordinates are accurate to 1/10,000 of a degree and interpolated points are accurate to the millionths of a degree.

## OffsetFromCorner

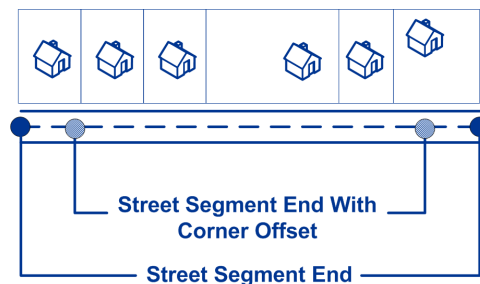
Specifies the distance to offset the street end points in street-level matching. The distance is specified in the units you specify in the OffsetUnits option. This value is used to prevent addresses at street corners from being given the same geocode as the intersection.

**Note:** Offset is not supported for the United Kingdom (GBR) or Japan (JPN).

The default value varies by country:

- 12 meters—Australia (AUS), Austria (AUT), Germany (DEU)
- 7 meters—For other supported countries, the default offset is 7 meters.

The following diagram compares the end points of a street to offset end points.



## OffsetUnits

Specifies the unit of measurement for the street offset and corner offset options. One of the following:

- Feet
- Miles

| Parameter         | Description  |                  |                  |                  |  |                   |   |
|-------------------|--|------------------|------------------|------------------|--|-------------------|---|
|                   | <ul style="list-style-type: none"> <li>• Meters</li> <li>• Kilometers</li> </ul> <p>The default is Meters.</p>   |                  |                  |                  |  |                   |   |
| CoordinateSystem  | <p>A coordinate system is a reference system for the unique location of a point in space. Cartesian (planar) and Geodetic (geographical) coordinates are examples of reference systems based on Euclidean geometry. Spectrum™ Technology Platform supports systems recognized by the European Petroleum Survey Group (EPSG).</p> <p>Each country supports different coordinate systems. Depending on the country, you have one or more of the following options:</p> <table> <tr> <td><b>EPSG:4230</b></td><td>Subset of WGS84.</td></tr> <tr> <td><b>EPSG:4326</b></td><td>Also known as the WGS84 coordinate system.</td></tr> <tr> <td><b>EPSG:27200</b></td><td>Also known as the NZGD49 coordinate system.</td></tr> </table>   | <b>EPSG:4230</b> | Subset of WGS84. | <b>EPSG:4326</b> | Also known as the WGS84 coordinate system. | <b>EPSG:27200</b> | Also known as the NZGD49 coordinate system. |
| <b>EPSG:4230</b>  | Subset of WGS84.   |                  |                  |                  |  |                   |   |
| <b>EPSG:4326</b>  | Also known as the WGS84 coordinate system.   |                  |                  |                  |  |                   |   |
| <b>EPSG:27200</b> | Also known as the NZGD49 coordinate system.  |                  |                  |                  |  |                   |   |
| IncludeInputs     | <p>Specifies whether to return the formatted input street address and each input address element in a separate field. This feature can help you understand how the input address was parsed and identify specific input elements that could not be geocoded. For example, a returned HouseNumber.Input could contain an invalid house number in your input address.</p> <p>You can specify parsed input returns for a specific country. For example, a REST API example for Canada is:</p> <pre>Option.CAN.IncludeInputs=Y</pre> <p><b>Note:</b> Data vintage must be 2014 Q4 or newer to get Parsed Address Input returns. Also note that Parsed Address Input elements are not returned for every country.</p> <p>Parsed Address Input elements are returned in separately labeled fields names with a .Input extension. For example:</p> <ul style="list-style-type: none"> <li>• FormattedInputStreet.Input</li> <li>• City.Input</li> <li>• Country.Input</li> <li>• HouseNumber.Input</li> <li>• Locality.Input</li> <li>• PostalCode.Base.Input</li> <li>• StreetName.Input</li> <li>• StreetSuffix.Input</li> </ul> <p>Other labeled fields are possible depending on the input address, country, and data source.</p> |                  |                  |                  |  |                   |   |

| Parameter | Description  |
|-----------|--|
|           | <p><b>Note:</b> Parsed Address Input elements are not returned for every country. Also, because Geocode Address World geocodes to the geographic or postal level only (not street address), this does not return Parsed Address Input</p> <p>For many countries, if part of the input address could not be recognized as a specific address element, this content is returned in UnparsedWords.Input.</p> <p>For intersection addresses, the first entered street is returned in StreetName.Input and the second entered street name is returned in IntersectionStreet2.Input.</p> |

## Matching Options

Matching options let you set match restrictions, fallback, and multiple match settings so that the matching can be as strict or relaxed as you need. The strictest matching conditions require an exact match on house number, street name, postal code and no fallback to postal code centroids. The geocoder looks for an exact street address match within the postal code in the input address. Relaxing the conditions broadens the area in which it searches for a match. For example, by relaxing the postal code, the geocoder searches for candidates outside the postal code but within the city of your input address.

**Table 4: Matching Options for Austria**

| Parameter      | Description  |
|----------------|--|
| KeepMultimatch | <p>Specifies whether to return results when the address matches to multiple candidates in the database. If this option is not selected, an address that results in multiple candidates will fail to geocode.</p> <p>If you select this option, specify the maximum number of candidates to return</p> <p><b>Y</b> Yes, return candidates when multiple candidates are found. Default.</p> <p><b>N</b> No, do not return candidates. Addresses that result in multiple candidates will fail to geocode.</p> |
| MaxCandidates  | <p>If you specify KeepMultimatch=Y, this option specifies the maximum number of results to return. The default is 1. Specify -1 (minus one) to return all possible candidates.</p>   |



| Parameter        | Description   |
|------------------|---|
| ReturnRanges     | <p>Specifies whether to return address range information. If you enable this option, the output field <code>Ranges</code> will be included in the output.</p> <p>A range is a series of addresses along a street segment. For example, 5400-5499 Main St. is an address range representing addresses in the 5400 block of Main St. A range may represent just odd or even addresses within a segment, or both odd and even addresses. A range may also represent a single building with multiple units, such as an apartment building.</p> <p><b>Y</b> Yes, return address range information.</p> <p><b>N</b> No, do not return address range information. Default.</p> |
| MaxRanges        | <p>If you choose to return ranges, this option specifies the maximum number of ranges to return for each candidate. Since the geocoder returns one candidate per segment, and since a segment may contain multiple ranges, this option allows you to see the other ranges in a candidate's segment.</p>   |
| MaxRangeUnits    | <p>If you choose to return ranges, this option specifies the maximum number of units (for example, apartments or suites) to return for each range.</p> <p>For example, if you were to geocode an office building at 65 Main St. containing four suites, there would be a maximum of four units returned for the building's range (65 Suite 1, 65 Suite 2, 65 Suite 3, and 65 Suite 4). If you were to specify a maximum number of units as 2, then only two units would be returned instead of all four.</p>  |
| CloseMatchesOnly | <p>Specifies whether to return only those geocoded results that are close match candidates. For example, if there are 10 candidates and two of them are close candidates, and you enable this option, only the two close matching candidates would be returned instead of all 10. To specify what is considered a close match, use the options. Address candidates are ranked according to how closely the input address matches these preferences.</p> <p><b>Y</b> Yes, return only close matches.</p> <p><b>N</b> No, do not return only close matches. Default.</p>  |
| MatchMode        | <p>Specifies how to determine whether a candidate is a close match. One of the following:</p> <p><b>CustomMode</b> This option allows you to specify which parts of a candidate address must match the input address to be considered a close match. Use the to specify the address elements you want. This is the default value for most countries.</p> <p><b>RelaxedMode</b> All candidate addresses are considered a close match.</p>  |

| Parameter            | Description  |
|----------------------|--|
| MustMatchInput       | <p>Specifies whether candidates must match all non-blank input fields to be considered a close match. For example, if an input address contains a city and postal code, then candidates for this address must match the city and postal code to be considered a close match.</p> <p><b>Y</b> Yes, a candidate must match all input to be considered a close match.</p> <p><b>N</b> No, a candidate does not have to match all input to be considered a close match. Default.</p>   |
| MustMatchHouseNumber | <p>Specifies whether candidates must match the house number to be considered a close match.</p> <p>If you select this option you should also require an exact match on street name. This option does not significantly affect performance. It does, however, affect the type of match if the candidate address corresponds to a segment that does not contain any ranges. The type of match can also be affected when the house number range for a candidate does not contain the input house number. If you relax the house number, you should set the maximum ranges to be returned to a value higher than 0.</p> <p><b>Y</b> Yes, a candidate must match the house number to be considered a close match.</p> <p><b>N</b> No, a candidate does not have to match the house number to be considered a close match.</p> |
| MustMatchStreet      | <p>Specifies whether candidates must match the street name to be considered a close match.</p> <p>If a close match is found, the geocoder attempts expanded street name manipulation, which looks for candidates with names that sound like the input address or that are spelled improperly. This slows down performance but increases the match rate . If the geocoding database is indexed, the performance impact is reduced.</p> <p><b>Y</b> Yes, a candidate must match the street name to be considered a close match.</p> <p><b>N</b> No, a candidate does not have to match the street name to be considered a close match.</p>   |
| MustMatchLocality    | <ul style="list-style-type: none"> <li>• AUT (Austria)—Not used</li> </ul> <p><b>Y</b> Yes, a candidate must match the locality to be considered a close match.</p> <p><b>N</b> No, a candidate does not have to match the locality to be considered a close match.</p>  |

| Parameter              | Description   |
|------------------------|---|
| MustMatchCity          | <p>Specifies whether candidates must match the city to be considered a close match. For Japan, this field specifies whether the candidate must match the municipality subdivision (oaza). If you do not require exact matches on city, the geocoder searches on the street address matched to the particular postal code, and considers other cities that do not match the name, but do match the postal code.</p> <p><b>Y</b> Yes, a candidate must match the city to be considered a close match.</p> <p><b>N</b> No, a candidate does not have to match the city to be considered a close match.</p> |
| MustMatchCounty        | <p>Specifies whether candidates must match the county (or equivalent) to be considered a close match. The meaning of county varies for different countries.</p> <ul style="list-style-type: none"> <li>• AUT (Austria)—Province</li> </ul> <p>One of the following:</p> <p><b>Y</b> Yes, a candidate must match the county to be considered a close match.</p> <p><b>N</b> No, a candidate does not have to match the county to be considered a close match.</p>  |
| MustMatchStateProvince | <p>Specifies whether candidates must match the state or province (or equivalent) to be considered a close match.</p> <p>This option is not used for this country.</p> <ul style="list-style-type: none"> <li>• AUT (Austria)—Region</li> </ul> <p>One of the following:</p> <p><b>Y</b> Yes, a candidate must match the state or province to be considered a close match.</p> <p><b>N</b> No, a candidate does not have to match the state or province to be considered a close match.</p>  |
| MustMatchPostalCode    | <p>Specifies whether candidates must match the postal code to be considered a close match. If you do not require exact match on postal codes, the geocoder searches a wider area for a match. While this results in slower performance, the match rate is higher because the request does not need to match exactly when it compares match candidates.</p> <p><b>Y</b> Yes, a candidate must match the postal code to be considered a close match.</p> <p><b>N</b> No, a candidate does not have to match the postal code to be considered a close match.</p>   |

| Parameter                 | Description  |
|---------------------------|--|
| SortCandidatesUsingLocale | <p>This is a Reverse geocoding option that applies to Greece, Russia, Ukraine, and any other country that supports dual character sets (such as the Middle East countries).</p> <p>Specifies whether candidates are sorted and returned based on the input language. That is, if the input was in Russian, the Russian character candidate is returned first followed by the English language candidate. This will override the dictionary order.</p> <p><b>Y</b> Yes, candidates are sorted and returned based on input language.</p> <p><b>N</b> No, candidates are returned in the order that the dictionary was added to the database, regardless of input language.</p> |

You may want to use a balanced strategy between match rate and geographic precision. That is, you may want to geocode as many records as possible automatically, but at the same time want to minimize the number of weaker matches (false positives). For example, false positives can occur when the geocoder:

- finds a street that sounds like the input street.
- finds the same street in another city (if postal code match is not required).
- finds the street but with a different house number (if house number is not required).

The following settings may achieve a good balance between match rate and precision:

- **CloseMatchesOnly**—Specify "Y".
- **MustMatchHouseNumber**—Specify "Y".
- **MustMatchStreet**—Specify "Y".
- **FallbackToPostal**—Specify "N".

## Data Options

The Data tab allows you to specify which databases to use in geocoding. Databases contain the address and geocode data necessary to determine the geocode for a given address. There are two kinds of databases: standard databases and custom databases. Standard databases are those supplied by Pitney Bowes and based on address and geocoding data from postal authorities and suppliers of geographical data. Custom databases are databases you create to enhance or augment standard databases for your particular needs.

The following table lists the options available for specifying which databases to use and the search order of databases.

**Table 5: Data Options for Austria**

| Parameter           | Description   |
|---------------------|---|
| Database            | Specifies the database to be used for geocoding. Only databases that have been defined in the Databases Resources panel in the Management Console are available.  |
| DatabasePreference  | <p>Specifies which geocoding databases to use. One of the following:</p> <p><b>PreferCustom</b> Use both standard databases and custom databases, but give preference to candidates from custom databases. Use this option if you feel your custom database is superior to the standard database.</p> <p><b>PreferStandard</b> Use both standard databases and custom databases, but give preference to candidates from standard databases.</p> <p><b>CustomOnly</b> Use only custom databases. Ignore standard databases.</p> <p><b>StandardOnly</b> Use only standard databases. Ignore custom databases.</p> <p><b>Both</b> Use both standard databases and custom databases. In cases where candidates are returned from both, the standard database is preferred. Default.</p> <p>The results from a custom database have a "U" at the end of the result code. Results from an address database have an "A" at the end of the match score. For example: S5HPNTSCZA is a match score that comes from an address database, while S5HPNTSCZU comes from a custom database. For more information, see <a href="#">Result Codes for International Geocoding</a> on page 31.</p> |
| DatabaseSearchOrder | <p>The name of one or more database resources to use in the search process. Use the database name specified in the Management Console's Database Resources tool.</p> <p>You can specify multiple database resources. If you specify more than one database, list them in order of preference.</p> <p>The order of the databases has an effect when there are close match candidates from different databases. The close matches that are returned come from the database that is first in the search list. Close matches from lower ranked databases are demoted to non-close matches.</p> <p>You can also use the order of the databases to perform fallback processing if you have an both an address point database and a street-level database installed for the country. List the address point database first and the street database second. If the address cannot be geocoded to the address point level, the geocoder will attempt to geocode it to the street level.</p>  |

# Output

The geocoder returns the latitude/longitude, standardized address, and result indicators. Result indicators describe how well the geocoder matched the input address to a known address and assigned a location; they also describe the overall status of a match attempt.

## Address Output

The address may be identical to the input address if the input address was accurate, or it may be a standardized version of the input address, or it may be a candidate address when multiple matches are found.

**Table 6: Address Output for Austria**

| Response Element      | Description   |
|-----------------------|---|
| AddressLine1          | First line of the address.  |
| AddressLine2          | Second line of the address.   |
| ApartmentLabel        | The type of unit, such as apartment, suite, or lot.                 |
| ApartmentLabel.Input  | The type of unit, such as apartment, suite, or lot as it was input. |
| ApartmentNumber       | Unit number.  |
| ApartmentNumber.Input | Unit number as it was input   |
| City                  | The municipality name.  |

| Response Element           | Description  |
|----------------------------|--|
| City.Input                 | The municipality name as it was input. For Japan, the municipality subdivision (sub-city)  |
| Country                    | <p>The three-letter ISO 3166-1 Alpha 3 country code.</p> <p>For Austria, the country code is AUT.</p> <p>Addresses for countries that do not have a dedicated geocoding stage return the country code associated with the input address. For example, Vatican City addresses return VAT in the Country field, regardless of whether VAT or ITA (Italy) was passed as the country code. Similarly, addresses in Martinique return MTQ (rather than FRA) in the Country field.</p>                 |
| Country.Input              | <p>The three-letter ISO 3166-1 Alpha 3 country code as it was input.</p> <p>For Austria, the country code is AUT.</p> <p>Addresses for countries that do not have a dedicated geocoding stage return the country code associated with the input address. For example, Vatican City addresses return VAT in the Country field, regardless of whether VAT or ITA (Italy) was passed as the country code. Similarly, addresses in Martinique return MTQ (rather than FRA) in the Country field.</p> |
| County                     | <p>The meaning of county varies by country.</p> <ul style="list-style-type: none"> <li>AUT (Austria)—Province</li> </ul>   |
| County.Input               | <p>The county name, or equivalent, as it was input. The meaning of county varies by country.</p> <ul style="list-style-type: none"> <li>AUT (Austria)—Province</li> </ul>  |
| FirmName                   | Name of the company or a place name.   |
| FirmName.Input             | Name of the company or a place name as it was input.   |
| FormattedInputStreet.Input | The street as it was input.  |
| Geocoder.MatchCode         |  |

| Response Element          | Description  |
|---------------------------|--|
| HouseNumber               | The building number for the matched location.  |
| HouseNumber.Input         | The building number for the matched location as it was input   |
| HouseNumberHigh           | The highest house number of the range in which the address resides.  |
| HouseNumberLow            | The lowest house number of the range in which the address resides.   |
| HouseNumberParity         | Indicates if the house number range contains even or odd numbers or both.<br><div> <div>E</div> <div>O</div> <div>B</div> <div>U</div> </div> <div> <div>Even</div> <div>Odd</div> <div>Both</div> <div>Unknown</div> </div> |
| IntersectionStreet2.Input | The second street in an intersection address as it was input.  |
| IsCloseMatch              | Indicates whether candidate is a close match.  |
| Language                  | For reverse geocoded candidates, the two-character language code is returned.  |
| LastLine                  | Complete last address line (city, state/province, and postal code).  |
| Latitude                  | Latitude of the candidate.   |
| LeadingDirectional        | Street directional that precedes the street name. For example, the N in 138 N Main Street.   |
| LeadingDirectional.Input  | Street directional that precedes the street name as it was input.  |



| Response Element        | Description   |
|-------------------------|---|
| Locality                | <p>The meaning of locality varies by country. Generally a locality is a village in rural areas or it may be a suburb in urban areas. When used, a locality typically appears on the lastline of the address with the postcode.</p> <ul style="list-style-type: none"> <li>• AUT (Austria)—Not used</li> </ul> |
| Locality.Input          | <p>The locality as it was input.</p> <ul style="list-style-type: none"> <li>• AUT (Austria)—Not used</li> </ul>   |
| LocationPrecision       | .   |
| Longitude               | Longitude of the candidate.   |
| NumberOfCandidateRanges | Indicates the number of ranges of which the candidate is a member. A candidate may be a part of multiple ranges if the candidate is a street instead of a building.   |
| NumberOfRangeUnits      | Indicates the number of units included in the range. A unit is an address within a building, such as an apartment or office suite.  |
| PostalCode              | The postcode for the address. The format of the postcode varies by country. Postcode data is not available for every country.   |
| PostalCode.Addon        | The second part of a postcode. This field is not used by most countries.  |
| PostalCode.Addon.Input  | The second part of a postcode as it was input. This field is not used by most countries.  |
| PostalCode.Base         | The first part of a postcode. This field is not used by most countries.   |
| PostalCode.Base.Input   | The first part of a postcode. This field is not used by most countries.   |
| PreAddress              | Miscellaneous information that appears before the street name.  |

| Response Element               | Description   |                |   |                         |  |                        |   |                       |   |                      |   |          |   |          |  |          |   |                          |  |          |   |          |  |          |  |           |   |                                |  |
|--------------------------------|---|----------------|---|-------------------------|--|------------------------|---|-----------------------|---|----------------------|---|----------|---|----------|--|----------|---|--------------------------|--|----------|---|----------|--|----------|--|-----------|---|--------------------------------|--|
| PrivateMailbox                 | This field is not currently used.   |                |   |                         |  |                        |   |                       |   |                      |   |          |   |          |  |          |   |                          |  |          |   |          |  |          |  |           |   |                                |  |
| Ranges                         | <p>This is a list field containing the address ranges that exist on the street segment where the candidate address is located.</p> <p>A range is a series of addresses along a street segment. For example, 5400-5499 Main St. is an address range representing addresses in the 5400 block of Main St. A range may represent just odd or even addresses within a segment, or both odd and even addresses. A range may also represent a single building with multiple units, such as an apartment building.</p> <p>The Ranges field contains the following sub-fields:</p> <table> <tr> <td><b>Address</b></td><td>This is a list field that contains sub-fields for any address elements (AddressLine1, City, and so on) that are different from the candidate's address.</td></tr> <tr> <td><b>AdditionalFields</b></td><td>A listing of country-specific information related to the address. The information contained in AdditionalFields varies by country.</td></tr> <tr> <td><b>HouseNumberHigh</b></td><td>The highest address number for the range.</td></tr> <tr> <td><b>HouseNumberLow</b></td><td>The lowest address number for the range.</td></tr> <tr> <td><b>SegmentParity</b></td><td> <p>Indicates the side of the street where the range is located. One of the following:</p> <table> <tr> <td><b>0</b></td><td>It is not known which side of the street the range is located on.</td></tr> <tr> <td><b>1</b></td><td>The range is on the left side of the street.</td></tr> <tr> <td><b>2</b></td><td>The range is on the right side of the street.</td></tr> </table> </td></tr> <tr> <td><b>HouseNumberParity</b></td><td> <p>Indicates whether the range contains odd or even address numbers. One of the following:</p> <table> <tr> <td><b>0</b></td><td>The range contains both odd and even address numbers.</td></tr> <tr> <td><b>1</b></td><td>The range contains odd address numbers</td></tr> <tr> <td><b>2</b></td><td>The range contains even address numbers.</td></tr> <tr> <td><b>-1</b></td><td>It is not known whether the range contains odd or even house numbers.</td></tr> </table> </td></tr> <tr> <td><b>TotalRangeUnitsReturned</b></td><td>The number of unit ranges returned for the address. A unit is an address within a building, such as an apartment or suite.</td></tr> </table> | <b>Address</b> | This is a list field that contains sub-fields for any address elements (AddressLine1, City, and so on) that are different from the candidate's address. | <b>AdditionalFields</b> | A listing of country-specific information related to the address. The information contained in AdditionalFields varies by country. | <b>HouseNumberHigh</b> | The highest address number for the range.     | <b>HouseNumberLow</b> | The lowest address number for the range.                              | <b>SegmentParity</b> | <p>Indicates the side of the street where the range is located. One of the following:</p> <table> <tr> <td><b>0</b></td><td>It is not known which side of the street the range is located on.</td></tr> <tr> <td><b>1</b></td><td>The range is on the left side of the street.</td></tr> <tr> <td><b>2</b></td><td>The range is on the right side of the street.</td></tr> </table> | <b>0</b> | It is not known which side of the street the range is located on. | <b>1</b> | The range is on the left side of the street. | <b>2</b> | The range is on the right side of the street. | <b>HouseNumberParity</b> | <p>Indicates whether the range contains odd or even address numbers. One of the following:</p> <table> <tr> <td><b>0</b></td><td>The range contains both odd and even address numbers.</td></tr> <tr> <td><b>1</b></td><td>The range contains odd address numbers</td></tr> <tr> <td><b>2</b></td><td>The range contains even address numbers.</td></tr> <tr> <td><b>-1</b></td><td>It is not known whether the range contains odd or even house numbers.</td></tr> </table> | <b>0</b> | The range contains both odd and even address numbers. | <b>1</b> | The range contains odd address numbers | <b>2</b> | The range contains even address numbers. | <b>-1</b> | It is not known whether the range contains odd or even house numbers. | <b>TotalRangeUnitsReturned</b> | The number of unit ranges returned for the address. A unit is an address within a building, such as an apartment or suite. |
| <b>Address</b>                 | This is a list field that contains sub-fields for any address elements (AddressLine1, City, and so on) that are different from the candidate's address.   |                |   |                         |  |                        |   |                       |   |                      |   |          |   |          |  |          |   |                          |  |          |   |          |  |          |  |           |   |                                |  |
| <b>AdditionalFields</b>        | A listing of country-specific information related to the address. The information contained in AdditionalFields varies by country.  |                |   |                         |  |                        |   |                       |   |                      |   |          |   |          |  |          |   |                          |  |          |   |          |  |          |  |           |   |                                |  |
| <b>HouseNumberHigh</b>         | The highest address number for the range.   |                |   |                         |  |                        |   |                       |   |                      |   |          |   |          |  |          |   |                          |  |          |   |          |  |          |  |           |   |                                |  |
| <b>HouseNumberLow</b>          | The lowest address number for the range.  |                |   |                         |  |                        |   |                       |   |                      |   |          |   |          |  |          |   |                          |  |          |   |          |  |          |  |           |   |                                |  |
| <b>SegmentParity</b>           | <p>Indicates the side of the street where the range is located. One of the following:</p> <table> <tr> <td><b>0</b></td><td>It is not known which side of the street the range is located on.</td></tr> <tr> <td><b>1</b></td><td>The range is on the left side of the street.</td></tr> <tr> <td><b>2</b></td><td>The range is on the right side of the street.</td></tr> </table>   | <b>0</b>       | It is not known which side of the street the range is located on.   | <b>1</b>                | The range is on the left side of the street.   | <b>2</b>               | The range is on the right side of the street. |                       |   |                      |   |          |   |          |  |          |   |                          |  |          |   |          |  |          |  |           |   |                                |  |
| <b>0</b>                       | It is not known which side of the street the range is located on.   |                |   |                         |  |                        |   |                       |   |                      |   |          |   |          |  |          |   |                          |  |          |   |          |  |          |  |           |   |                                |  |
| <b>1</b>                       | The range is on the left side of the street.  |                |   |                         |  |                        |   |                       |   |                      |   |          |   |          |  |          |   |                          |  |          |   |          |  |          |  |           |   |                                |  |
| <b>2</b>                       | The range is on the right side of the street.   |                |   |                         |  |                        |   |                       |   |                      |   |          |   |          |  |          |   |                          |  |          |   |          |  |          |  |           |   |                                |  |
| <b>HouseNumberParity</b>       | <p>Indicates whether the range contains odd or even address numbers. One of the following:</p> <table> <tr> <td><b>0</b></td><td>The range contains both odd and even address numbers.</td></tr> <tr> <td><b>1</b></td><td>The range contains odd address numbers</td></tr> <tr> <td><b>2</b></td><td>The range contains even address numbers.</td></tr> <tr> <td><b>-1</b></td><td>It is not known whether the range contains odd or even house numbers.</td></tr> </table>  | <b>0</b>       | The range contains both odd and even address numbers.   | <b>1</b>                | The range contains odd address numbers   | <b>2</b>               | The range contains even address numbers.      | <b>-1</b>             | It is not known whether the range contains odd or even house numbers. |                      |   |          |   |          |  |          |   |                          |  |          |   |          |  |          |  |           |   |                                |  |
| <b>0</b>                       | The range contains both odd and even address numbers.   |                |   |                         |  |                        |   |                       |   |                      |   |          |   |          |  |          |   |                          |  |          |   |          |  |          |  |           |   |                                |  |
| <b>1</b>                       | The range contains odd address numbers  |                |   |                         |  |                        |   |                       |   |                      |   |          |   |          |  |          |   |                          |  |          |   |          |  |          |  |           |   |                                |  |
| <b>2</b>                       | The range contains even address numbers.  |                |   |                         |  |                        |   |                       |   |                      |   |          |   |          |  |          |   |                          |  |          |   |          |  |          |  |           |   |                                |  |
| <b>-1</b>                      | It is not known whether the range contains odd or even house numbers.   |                |   |                         |  |                        |   |                       |   |                      |   |          |   |          |  |          |   |                          |  |          |   |          |  |          |  |           |   |                                |  |
| <b>TotalRangeUnitsReturned</b> | The number of unit ranges returned for the address. A unit is an address within a building, such as an apartment or suite.  |                |   |                         |  |                        |   |                       |   |                      |   |          |   |          |  |          |   |                          |  |          |   |          |  |          |  |           |   |                                |  |

| Response Element | Description   |
|------------------|---|
|                  | <p><b>RangeUnits</b> A list of the ranges of units within the building. An example of units are apartments or suites.</p> <p><b>Address</b> This is a list filed that contains sub-fields for any address elements (AddressLine1, City, and so on) that are different from the candidate's address.</p> <p><b>UnitNumberHigh</b> The highest unit number.</p> <p><b>UnitNumberLow</b> The lowest unit number.</p> |
| SegmentCode      | A unique ID that identifies a street segment.   |
| SegmentParity    | <p>Indicates which side of the street has odd numbers.</p> <p><b>L</b> Left side of the street</p> <p><b>R</b> Right side of the street</p> <p><b>B</b> Both sides of the street</p> <p><b>U</b> Undetermined</p>   |
| StateProvince    | <p>The meaning of State/Province varies by country.</p> <ul style="list-style-type: none"> <li>• AUT (Austria)—Region</li> </ul>  |
| StreetDataType   | <p>The default search order rank of the database used to geocode the address. A value of "1" indicates that the database is first in the default search order, "2" indicates that the database is second in the default search order, and so on.</p> <p>The default database search order is specified in the Management Console with the Database Resources tool.</p>  |
| StreetName       | For most countries, this contains the street name.  |
| StreetPrefix     | The type of street when the street type appears before the base street name.  |
| StreetSuffix     | The type of street when the street type appears after the base street name.   |

| Response Element      | Description  |
|-----------------------|--|
| TrailingDirectional   | Street directional that follows the street name.   |
| UnitNumberHigh        | The highest unit number of the range in which the unit resides.  |
| UnitNumberLow         | The lowest unit number of the range in which the unit resides.   |
| Return Parsed Address | The formatted input address can be returned along with a separate returned field for each input address element. Parsed Address Input elements are returned in separately labeled fields names with a .Input extension. See the <a href="#">Return Parsed Address Geocoding Option</a> for more information. |

## Geocode Output

**Table 7: Geocode Output for Austria**

| Response Element | Description  |
|------------------|--|
| CoordinateSystem | The coordinate system used to determine the latitude and longitude coordinates. A coordinate system specifies a map projection, coordinate units, etc. An example is EPSG:4326. EPSG stands for European Petroleum Survey Group. |
| Latitude         | Seven-digit number in degrees and calculated to four decimal places (in the format specified).   |
| Longitude        | Seven-digit number in degrees and calculated to four decimal places (in the format specified).   |

## Country-Specific Output

The following topics describe output that's unique to specific countries.

## Result Codes

Result codes contain information about the success or failure of the geocoding attempt, as well as information about the accuracy of the geocode.

**Table 8: Result Code Output for Austria**

| Response Element   | Description  |
|--------------------|--|
| Geocoder.MatchCode | Indicates how closely the input address matches the candidate address. For more information, see <a href="#">Result Codes for International Geocoding</a> on page 31.  |
| IsCloseMatch       | <p>Indicates whether or not the address is considered a close match. An address is considered close based on the "Close match criteria" options on the Matching tab.</p> <p><b>Y</b>                      Yes, the address is a close match.</p> <p><b>N</b>                      No, the address is not a close match.</p>  |
| MultiMatchCount    | <p>For street address geocoding, the number of matching address positions found for the specified address.</p> <p>For intersection geocoding, the number of matching street intersection positions found for the specified addresses.</p>  |
| Status             | <p>Reports the success or failure of the match attempt</p> <p><b>null</b>                      Success</p> <p><b>F</b>                              Failure</p>  |
| Status.Code        | <p>If the geocoder could not process the address, this field will show the reason.</p> <ul style="list-style-type: none"> <li>• Internal System Error</li> <li>• No Geocode Found</li> <li>• Insufficient Input Data</li> <li>• Multiple Matches Found</li> <li>• Exception occurred</li> <li>• Unable to initialize Geocoder</li> <li>• No Match Found</li> </ul> |

| Response Element   | Description  |                              |  |                         |   |                             |   |                               |  |  |   |          |                         |          |               |          |  |          |                          |          |                  |           |                |           |                    |  |  |           |   |           |   |
|--|--|------------------------------|--|-------------------------|---|-----------------------------|---|-------------------------------|--|--|---|----------|-------------------------|----------|---------------|----------|--|----------|--------------------------|----------|------------------|-----------|----------------|-----------|--------------------|--|--|-----------|---|-----------|---|
| Status.Description   | <p>If the geocoder could not process the address, this field will show a description of the failure.</p> <table> <tr> <td><b>Problem + explanation</b></td><td>Returned when Status.Code = Internal System Error.</td></tr> <tr> <td><b>Geocoding Failed</b></td><td>Returned when Status.Code = No Geocode Found.</td></tr> <tr> <td><b>No location returned</b></td><td>Returned when Status.Code = No Geocode Found.</td></tr> <tr> <td><b>No Candidates Returned</b></td><td>The geocoder could not identify any candidate matches for the address.</td></tr> <tr> <td><b>Multiple Candidates Returned and Keep Multiple Matches not selected</b></td><td>The address resulted in multiple candidates. In order for the candidate address to be returned, you must.</td></tr> </table>   | <b>Problem + explanation</b> | Returned when Status.Code = Internal System Error.                 | <b>Geocoding Failed</b> | Returned when Status.Code = No Geocode Found. | <b>No location returned</b> | Returned when Status.Code = No Geocode Found. | <b>No Candidates Returned</b> | The geocoder could not identify any candidate matches for the address. | <b>Multiple Candidates Returned and Keep Multiple Matches not selected</b> | The address resulted in multiple candidates. In order for the candidate address to be returned, you must. |          |                         |          |               |          |  |          |                          |          |                  |           |                |           |                    |  |  |           |   |           |   |
| <b>Problem + explanation</b>   | Returned when Status.Code = Internal System Error.   |                              |  |                         |   |                             |   |                               |  |  |   |          |                         |          |               |          |  |          |                          |          |                  |           |                |           |                    |  |  |           |   |           |   |
| <b>Geocoding Failed</b>  | Returned when Status.Code = No Geocode Found.  |                              |  |                         |   |                             |   |                               |  |  |   |          |                         |          |               |          |  |          |                          |          |                  |           |                |           |                    |  |  |           |   |           |   |
| <b>No location returned</b>  | Returned when Status.Code = No Geocode Found.  |                              |  |                         |   |                             |   |                               |  |  |   |          |                         |          |               |          |  |          |                          |          |                  |           |                |           |                    |  |  |           |   |           |   |
| <b>No Candidates Returned</b>  | The geocoder could not identify any candidate matches for the address.   |                              |  |                         |   |                             |   |                               |  |  |   |          |                         |          |               |          |  |          |                          |          |                  |           |                |           |                    |  |  |           |   |           |   |
| <b>Multiple Candidates Returned and Keep Multiple Matches not selected</b> | The address resulted in multiple candidates. In order for the candidate address to be returned, you must.  |                              |  |                         |   |                             |   |                               |  |  |   |          |                         |          |               |          |  |          |                          |          |                  |           |                |           |                    |  |  |           |   |           |   |
| LocationPrecision  | <p>A code describing the precision of the geocode. One of the following:</p> <table> <tr> <td><b>0</b></td><td>No coordinate information is available for this candidate address.</td></tr> <tr> <td><b>1</b></td><td>Interpolated street address.</td></tr> <tr> <td><b>2</b></td><td>Street segment midpoint.</td></tr> <tr> <td><b>3</b></td><td>Postal code 1 centroid.</td></tr> <tr> <td><b>4</b></td><td>Partial postal code 2 centroid.</td></tr> <tr> <td><b>5</b></td><td>Postal code 2 centroid.</td></tr> <tr> <td><b>6</b></td><td>Intersection.</td></tr> <tr> <td><b>7</b></td><td>Point of interest. This is a placeholder value. Spectrum databases do not have POI data, so it is not possible to get this return.</td></tr> <tr> <td><b>8</b></td><td>State/province centroid.</td></tr> <tr> <td><b>9</b></td><td>County centroid.</td></tr> <tr> <td><b>10</b></td><td>City centroid.</td></tr> <tr> <td><b>11</b></td><td>Locality centroid.</td></tr> <tr> <td><b>12 - 15 (LocationPrecision codes)</b></td><td>For most countries, LocationPrecision codes 12 through 15 are reserved for unspecified custom items.</td></tr> <tr> <td><b>13</b></td><td>Additional point precision for unspecified custom item.</td></tr> <tr> <td><b>14</b></td><td>Additional point precision for unspecified custom item.</td></tr> </table> | <b>0</b>                     | No coordinate information is available for this candidate address. | <b>1</b>                | Interpolated street address.                  | <b>2</b>                    | Street segment midpoint.                      | <b>3</b>                      | Postal code 1 centroid.  | <b>4</b>   | Partial postal code 2 centroid.   | <b>5</b> | Postal code 2 centroid. | <b>6</b> | Intersection. | <b>7</b> | Point of interest. This is a placeholder value. Spectrum databases do not have POI data, so it is not possible to get this return. | <b>8</b> | State/province centroid. | <b>9</b> | County centroid. | <b>10</b> | City centroid. | <b>11</b> | Locality centroid. | <b>12 - 15 (LocationPrecision codes)</b> | For most countries, LocationPrecision codes 12 through 15 are reserved for unspecified custom items. | <b>13</b> | Additional point precision for unspecified custom item. | <b>14</b> | Additional point precision for unspecified custom item. |
| <b>0</b>   | No coordinate information is available for this candidate address.   |                              |  |                         |   |                             |   |                               |  |  |   |          |                         |          |               |          |  |          |                          |          |                  |           |                |           |                    |  |  |           |   |           |   |
| <b>1</b>   | Interpolated street address.   |                              |  |                         |   |                             |   |                               |  |  |   |          |                         |          |               |          |  |          |                          |          |                  |           |                |           |                    |  |  |           |   |           |   |
| <b>2</b>   | Street segment midpoint.   |                              |  |                         |   |                             |   |                               |  |  |   |          |                         |          |               |          |  |          |                          |          |                  |           |                |           |                    |  |  |           |   |           |   |
| <b>3</b>   | Postal code 1 centroid.  |                              |  |                         |   |                             |   |                               |  |  |   |          |                         |          |               |          |  |          |                          |          |                  |           |                |           |                    |  |  |           |   |           |   |
| <b>4</b>   | Partial postal code 2 centroid.  |                              |  |                         |   |                             |   |                               |  |  |   |          |                         |          |               |          |  |          |                          |          |                  |           |                |           |                    |  |  |           |   |           |   |
| <b>5</b>   | Postal code 2 centroid.  |                              |  |                         |   |                             |   |                               |  |  |   |          |                         |          |               |          |  |          |                          |          |                  |           |                |           |                    |  |  |           |   |           |   |
| <b>6</b>   | Intersection.  |                              |  |                         |   |                             |   |                               |  |  |   |          |                         |          |               |          |  |          |                          |          |                  |           |                |           |                    |  |  |           |   |           |   |
| <b>7</b>   | Point of interest. This is a placeholder value. Spectrum databases do not have POI data, so it is not possible to get this return.   |                              |  |                         |   |                             |   |                               |  |  |   |          |                         |          |               |          |  |          |                          |          |                  |           |                |           |                    |  |  |           |   |           |   |
| <b>8</b>   | State/province centroid.   |                              |  |                         |   |                             |   |                               |  |  |   |          |                         |          |               |          |  |          |                          |          |                  |           |                |           |                    |  |  |           |   |           |   |
| <b>9</b>   | County centroid.   |                              |  |                         |   |                             |   |                               |  |  |   |          |                         |          |               |          |  |          |                          |          |                  |           |                |           |                    |  |  |           |   |           |   |
| <b>10</b>  | City centroid.   |                              |  |                         |   |                             |   |                               |  |  |   |          |                         |          |               |          |  |          |                          |          |                  |           |                |           |                    |  |  |           |   |           |   |
| <b>11</b>  | Locality centroid.   |                              |  |                         |   |                             |   |                               |  |  |   |          |                         |          |               |          |  |          |                          |          |                  |           |                |           |                    |  |  |           |   |           |   |
| <b>12 - 15 (LocationPrecision codes)</b>                                   | For most countries, LocationPrecision codes 12 through 15 are reserved for unspecified custom items.   |                              |  |                         |   |                             |   |                               |  |  |   |          |                         |          |               |          |  |          |                          |          |                  |           |                |           |                    |  |  |           |   |           |   |
| <b>13</b>  | Additional point precision for unspecified custom item.  |                              |  |                         |   |                             |   |                               |  |  |   |          |                         |          |               |          |  |          |                          |          |                  |           |                |           |                    |  |  |           |   |           |   |
| <b>14</b>  | Additional point precision for unspecified custom item.  |                              |  |                         |   |                             |   |                               |  |  |   |          |                         |          |               |          |  |          |                          |          |                  |           |                |           |                    |  |  |           |   |           |   |

| Response Element | Description  |
|------------------|--|
| <b>15</b>        | Additional point precision for unspecified custom item.  |
| <b>16</b>        | The result is an address point.  |
| <b>17</b>        | The result was generated by using address point data to modify the candidates segment data.  |
| <b>18</b>        | The result is an address point that was projected using the centerline offset feature. You must have both a point and a street range database to use the centerline offset feature, and thereby return LocationPrecision 18.   |
| StreetDataType   | <p>The default search order rank of the database used to geocode the address. A value of "1" indicates that the database is first in the default search order, "2" indicates that the database is second in the default search order, and so on.</p> <p>The default database search order is specified in the Management Console with the Database Resources tool.</p> |

## Result Codes for International Geocoding

Candidates returned by Spectrum geocoders return another class of return codes that are referred to as International Geocoding Result Codes. Each attempted match returns a result code in the Geocoder.MatchCode output field.

### International Street Geocoding Result Codes (S Codes)

Street level geocoded candidates return a result code beginning with the letter S. The second character in the code indicates the positional accuracy of the resulting point for the geocoded record.

**Table 9: Street (S ) Result Codes**

| S Result Code | Description   |
|---------------|---|
| S1            | Single close match with the point located at postal code centroid.  |
| S3            | Single close match with the point located at postal code centroid.  |
| S4            | Single close match with the point located at the street centroid. For databases vintage 2014 Q4 or newer, the input house number is returned with the candidate even if no such house |

| S Result Code | Description   |
|---------------|---|
|               | number was found. The S4 code is followed by letters and dashes indicating match precision. See <a href="#">Interpreting S Result Codes</a> on page 32  |
| S5            | Single close match with the point located at a street address position. The S5 code is followed by letters and dashes indicating match precision. For information about these letters, see <a href="#">Interpreting S Result Codes</a> on page 32.  |
| S7            | Single match with the point located at an interpolated point along the candidate's street segment. When the potential candidate is not an address point candidate and there are no exact house number matches among other address point candidates, the S7 result is returned using address point interpolation. The point is interpolated according to the next highest or lowest address point candidate that both intersects the segment and whose house number is contained within the range of houses of the original candidate. By using known address reference points on the street segment, the S7 point can be adjusted to a more accurate position. For Australia, the S7-----G result code is also used for single matches with G-NAF Reliability level of 3. The reliability level is returned in the output field AUS.GNAF_Reliability. For more information, see <a href="#">Australia G-NAF Database Output</a> |
| S8            | Single close match with the point located at either the single point associated with an address point candidate or at an address point candidate that shares the same house number. No interpolation is required. S8 returns are possible with point databases only.  |
| SX            | Single close match with the point located at street intersection.   |

### Interpreting S Result Codes

For S (street geocoded) international result codes, eight additional characters describe how closely the address matches an address in the database. The characters appear in the order listed in the following table. Any non-matched address elements are represented by a dash.

For example, the result code S5--N-SCZA represents a single close match that matched the street name, street suffix direction, town, and postcode. The dashes indicate that there was no match on house number, street prefix direction, or thoroughfare type. The match came from the Street Range Address database. This record would be geocoded at the street address position of the match candidate.

| Category | Description  | Example |
|----------|--------------|---------|
| H        | House number | 18      |



| Category   | Description   | Example        |
|------------|---|----------------|
| P          | <p>Street prefix direction</p> <p>P is present if any of these conditions are satisfied:</p> <ul style="list-style-type: none"> <li>• The candidate pre-directional matches the input pre-directional.</li> <li>• The candidate post-directional matches the input pre-directional after pre- and post-directionals are swapped.</li> <li>• The input does not have a pre-directional.</li> </ul>                   | North          |
| N          | Street name   | Merivale       |
| T          | Street type   | St             |
| S          | <p>Street suffix direction</p> <p>S in result code is present if any of these conditions are satisfied:</p> <ul style="list-style-type: none"> <li>• The candidate post-directional matches the input post-directional.</li> <li>• The candidate pre-directional matches the input post-directional after pre- and post-directionals are swapped.</li> <li>• The input does not have a post-directional.</li> </ul> | W              |
| C          | City name   | South Brisbane |
| Z          | Postal code   | 4101           |
| A, G, or U | <p>Database type used to obtain the match.</p> <ul style="list-style-type: none"> <li>• A—Street Range Address database.</li> <li>• U—Customer (user-defined) database.</li> </ul>  | A              |

### International Postal Geocoding Result Codes (Z Codes)

Matches in the Z category indicate that a match was made at the postcode level. A postcode match is returned in either of these cases:

- You specified to match to postal code centroids. The resulting point is located at the postal code centroid with the following possible accuracy levels.
- There is no street level close match and you specified to fall back to postal code centroid.

**Table 10: Postal (Z) Result Codes**

| Z Result Code | Description  |
|---------------|--|
| Z1            | Postal Code centroid match.  |
| Z3            | Full postal code centroid match. For Canada, this is an FSALDU centroid. |

Postal level geocoded candidates return a result code beginning with the letter Z. Austria can generate a Z1 result code. Country-specific geocoders can often generate more accurate postcode results (with Z2 or Z3 result codes).

If the postal candidate comes from a user dictionary, the letter U is appended to the result. For example, Z1U indicates a postal centroid match from a custom user dictionary.

### International Geographic Geocoding Result Codes (G Codes)

Geographic level geocoded candidates return a result code beginning with the letter G. The numbers following the G in the result code provides more detailed information on the accuracy of the candidate.

**Table 11: Geographic (G) Result Codes**

| G Result Code | Description   |
|---------------|---|
| G1            | State or province centroid. match.                          |
| G2            | County (district or region) centroid match.                 |
| G3            | City or town (municipality) centroid match.                 |
| G4            | Locality (village, suburb, or neighborhood) centroid match. |

If the geographic candidate comes from a user dictionary, the letter U is appended to the result code. For example, G4U indicates a locality centroid match from a custom user dictionary.

## Reverse Geocoding Codes (R Codes)

Matches in the R category indicate that the record was matched by reverse geocoding. The second two characters of the R result code indicate the type of match found. R geocode results include an additional letter to indicate the dictionary from which the match was made.

Example reverse geocoding codes:

**Table 12: Reverse Geocoding (R) Result Codes**

| Reverse Geocoding Code | Description  |
|------------------------|--|
| RS8A                   | Point/parcel level precision for reverse geocoding. Candidate returned from address dictionary.  |
| RS5A                   | Interpolated street candidate for reverse geocoding. Candidate returned from address dictionary. |
| RS4A                   | Street centroid candidate for reverse geocoding. Candidate returned from address dictionary.     |

If the reverse geocoded candidate comes from a user dictionary, the letter U is appended to the result. For example, RS8U indicates a point/parcel level reverse geocode match from a custom user dictionary.

## Non-match Codes

The following result codes indicate no match was made:

- **N**—No close match.
- **NX**—No close match for street intersections.
- **ND**—Spectrum™ Technology Platform could not find the geocoding database for the given postal code or municipality/state/province.

## 2 -

# ReverseGeocodeAddressGlobal

ReverseGeocodeAddressGlobal determines the address for a given latitude/longitude point. ReverseGeocodeAddressGlobal can determine addresses in many countries. The countries available to you depends on which country databases you have installed. For example, if you have databases for Canada, Italy, and Australia installed, ReverseGeocodeAddressGlobal would be able to geocode addresses in these countries in a single stage.

**Note:** ReverseGeocodeAddressGlobal does not support U.S. addresses. To geocode U.S. addresses, you must use ReverseGeocodeUSLocation. That performs reverse geocoding specifically for USA addresses.

Before you can work with ReverseGeocodeAddressGlobal, you must define a global database resource containing a database for one or more countries. Once you create the database resource, a ReverseGeocodeAddressGlobal will become available in the Management Console, Enterprise Designer, and Interactive Driver.

### In this section

---

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## Input

ReverseGeocodeAddressGlobal takes longitude and latitude as input.

For GRC, RUS, and JPN, the user's locale determines the language of the returned candidates for reverse geocoding. This can be Greek, Russian, or Japanese for GRC, RUS, and JPN respectively. English is the default locale.

**Table 13: ReverseGeocodeGlobal Input**

| Parameter | Format | Description   |
|-----------|--------|---|
| Latitude  | String | The latitude of the point for which you want address information.   |
| Longitude | String | The longitude of the point for which you want address information.  |
| Country   | String | One of the following: <ul style="list-style-type: none"><li>• The name of the country in English.</li><li>• The two-character ISO 3116-1 alpha-2 country code.</li><li>• The three-character ISO 3116-1 alpha-3 country code.</li></ul> |

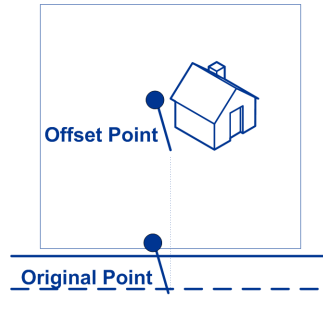
# Options

## Geocoding Options

**Table 14: Geocoding Options for Austria**

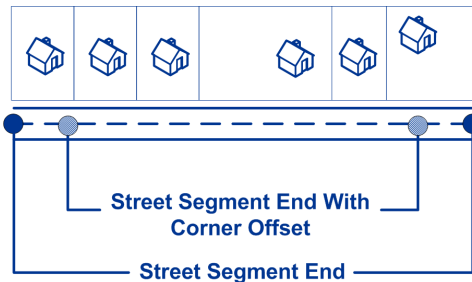
| Parameter        | Description  |
|------------------|--|
| SearchDistance   | The radius from the input coordinates in which to search for an address. Street segments and points within the radius are considered. The default search radius is 150 meters and the maximum search radius is 1600 meters.  |
| Units            | <p>The units in which the search distance is specified. One of the following:</p> <ul style="list-style-type: none"> <li>• Feet</li> <li>• Miles</li> <li>• Meters</li> <li>• Kilometers</li> </ul>  |
| OffsetFromStreet | <p>Indicates the offset distance from the street segments to use in street-level geocoding. The distance is specified in the units you specify in the OffsetUnits option.</p> <p>The default value varies by country. For most countries, the default is 7 meters. For Austria, Germany, and Australia the default is 10 meters.</p> <p>The offset distance is used in street-level geocoding to prevent the geocode from being in the middle of a street. It compensates for the fact that street-level geocoding returns a latitude and longitude point in the center of the street where the address is located. Since the building represented by an address is not on the street itself, you do not want the geocode for an address to be a point on the street. Instead, you want the geocode to represent the location of the building which sits next to the street. For example, an offset of 50 feet means that the geocode will represent a point 50 feet back from the center of the street. The distance is calculated perpendicular to the portion of the street segment for the address. Offset is also used to prevent addresses across the street from each other from being given the same point. The following diagram shows an offset point in relation to the original point.</p> |

| Parameter | Description |
|-----------|-------------|
|-----------|-------------|



Street coordinates are accurate to 1/10,000 of a degree and interpolated points are accurate to the millionths of a degree.

|                  |   |
|------------------|---|
| OffsetFromCorner | <p>Specifies the distance to offset the street end points in street-level matching. The distance is specified in the units you specify in the OffsetUnits option. This value is used to prevent addresses at street corners from being given the same geocode as the intersection.</p> <p><b>Note:</b> Offset is not supported for the United Kingdom (GBR) or Japan (JPN).</p> <p>The default value varies by country:</p> <ul style="list-style-type: none"> <li>• 12 meters—Australia (AUS), Austria (AUT), Germany (DEU)</li> <li>• 7 meters—For other supported countries, the default offset is 7 meters.</li> </ul> <p>The following diagram compares the end points of a street to offset end points.</p> <p>The diagram shows a horizontal line with several house icons above it. Below the line, two points are marked: 'Street Segment End With Corner Offset' (indicated by a dashed line) and 'Street Segment End' (indicated by a solid line). The 'Street Segment End With Corner Offset' point is further to the left than the 'Street Segment End' point.</p> |
| OffsetUnits      | <p>Specifies the unit of measurement for the street offset and corner offset options. One of the following:</p> <ul style="list-style-type: none"> <li>• Feet</li> <li>• Miles</li> <li>• Meters</li> <li>• Kilometers</li> </ul> <p>The default is Meters.</p>   |



| Parameter        | Description  |
|------------------|--|
| CoordinateSystem | <p>A coordinate system is a reference system for the unique location of a point in space. Cartesian (planar) and Geodetic (geographical) coordinates are examples of reference systems based on Euclidean geometry. Spectrum™ Technology Platform supports systems recognized by the European Petroleum Survey Group (EPSG).</p> <p>Each country supports different coordinate systems. Depending on the country, you have one or more of the following options:</p> <p><b>EPSG:4230</b>                      Subset of WGS84.</p> <p><b>EPSG:4326</b>                      Also known as the WGS84 coordinate system.</p> <p><b>EPSG:27200</b>                      Also known as the NZGD49 coordinate system.</p> |

## Matching Options

**Table 15: Matching Options for Austria**

| Parameter                 | Description  |
|---------------------------|--|
| KeepMultimatch            | <p>Specifies whether to return results when the coordinates match to multiple candidate addresses in the database. If this option is not selected, coordinates that results in multiple address candidates will fail to geocode.</p> <p>If you select this option, specify the maximum number of candidates to return using the MaxCandidates option (see below).</p> <p><b>Y</b>                      Yes, return candidates when multiple candidates are found. Default.</p> <p><b>N</b>                      No, do not return candidates. Addresses that result in multiple candidates will fail to geocode.</p>   |
| SortCandidatesUsingLocale | <p>This is a Reverse geocoding option that applies to Greece, Russia, Ukraine, and any other country that supports dual character sets (such as the Middle East countries).</p> <p>Specifies whether candidates are sorted and returned based on the input language. That is, if the input was in Russian, the Russian character candidate is returned first followed by the English language candidate. This will override the dictionary order.</p> <p><b>Y</b>                      Yes, candidates are sorted and returned based on input language.</p> <p><b>N</b>                      No, candidates are returned in the order that the dictionary was added to the database, regardless of input language.</p> |



## Data Options

The Data tab allows you to specify which databases to use in reverse geocoding. Databases contain the address and geocode data necessary to determine the address for a given point. The following table lists the options available for specifying the search order of databases.

**Table 16: Data Options for Austria**

| Parameter           | Description  |
|---------------------|--|
| DatabaseSearchOrder | <p>The name of one or more database resources to use in the search process. Use the database name specified in the Management Console's Database Resources tool.</p> <p>You can specify multiple database resources. If you specify more than one database, list them in order of preference.</p> <p>The order of the databases has an effect when there are close match candidates from different databases. The close matches that are returned come from the database that is first in the search list. Close matches from lower ranked databases are demoted to non-close matches.</p> <p>You can also use the order of the databases to perform fallback processing if you have an both an address point database and a street-level database installed for the country. List the address point database first and the street database second. If the address cannot be geocoded to the address point level, the geocoder will attempt to geocode it to the street level.</p> |

## Output

**Table 17: Reverse Geocode Address Global Output Fields**

| Response Element | Description                 |
|------------------|-----------------------------|
| AddressLine1     | First line of the address.  |
| AddressLine2     | Second line of the address. |

| Response Element   | Description   |
|--------------------|---|
| ApartmentLabel     | The type of unit, such as apartment, suite, or lot.   |
| ApartmentNumber    | Unit number.  |
| City               | The municipality name.  |
| County             | The meaning of county varies by country.<br>• AUT (Austria)—Province  |
| Distance           | The distance from input location in meters. If the input coordinates are an exact match for the address, the value is 0.  |
| FirmName           | Name of the company or a place name.  |
| Geocoder.MatchCode | Indicates how closely the input coordinates match the candidate address. For more information, see <a href="#">Reverse Geocoding Codes (R Codes)</a> on page 35.                    |
| HouseNumber        | The building number for the matched location.   |
| HouseNumberHigh    | The highest house number of the range in which the address resides.   |
| HouseNumberLow     | The lowest house number of the range in which the address resides.  |
| HouseNumberParity  | Indicates if the house number range contains even or odd numbers or both.<br><br><div> <div>E</div> <div>O</div> <div>B</div> <div>Even</div> <div>Odd</div> <div>Both</div> </div> |

| Response Element        | Description   |
|-------------------------|---|
|                         | <p><b>U</b>                      Unknown</p>  |
| Language                | For reverse geocoded candidates, the two-character language code is returned.   |
| LastLine                | Complete last address line (city, state/province, and postal code).   |
| LeadingDirectional      | Street directional that precedes the street name. For example, the N in 138 N Main Street.  |
| Locality                | <p>The meaning of locality varies by country. Generally a locality is a village in rural areas or it may be a suburb in urban areas. When used, a locality typically appears on the lastline of the address with the postcode.</p> <ul style="list-style-type: none"> <li>• AUT (Austria)—Not used</li> </ul> |
| NumberOfCandidateRanges | Indicates the number of ranges of which the candidate is a member. A candidate may be a part of multiple ranges if the candidate is a street instead of a building.   |
| NumberOfRangeUnits      | Indicates the number of units included in the range. A unit is an address within a building, such as an apartment or office suite.  |
| PostalCode              | The postcode for the address. The format of the postcode varies by country. Postcode data is not available for every country.   |
| PostalCode.Addon        | The second part of a postcode. This field is not used by most countries.  |
| PreAddress              | Miscellaneous information that appears before the street name.  |

| Response Element    | Description  |          |                         |          |                          |          |                          |          |              |
|---------------------|--|----------|-------------------------|----------|--------------------------|----------|--------------------------|----------|--------------|
| PrivateMailbox      | This field is not currently used.  |          |                         |          |                          |          |                          |          |              |
| SegmentCode         | A unique ID that identifies a street segment.  |          |                         |          |                          |          |                          |          |              |
| SegmentParity       | <p>Indicates which side of the street has odd numbers.</p> <table> <tr> <td><b>L</b></td><td>Left side of the street</td></tr> <tr> <td><b>R</b></td><td>Right side of the street</td></tr> <tr> <td><b>B</b></td><td>Both sides of the street</td></tr> <tr> <td><b>U</b></td><td>Undetermined</td></tr> </table>   | <b>L</b> | Left side of the street | <b>R</b> | Right side of the street | <b>B</b> | Both sides of the street | <b>U</b> | Undetermined |
| <b>L</b>            | Left side of the street  |          |                         |          |                          |          |                          |          |              |
| <b>R</b>            | Right side of the street   |          |                         |          |                          |          |                          |          |              |
| <b>B</b>            | Both sides of the street   |          |                         |          |                          |          |                          |          |              |
| <b>U</b>            | Undetermined   |          |                         |          |                          |          |                          |          |              |
| StateProvince       | <p>The meaning of State/Province varies by country.</p> <ul style="list-style-type: none"> <li>• AUT (Austria)—Region</li> </ul>   |          |                         |          |                          |          |                          |          |              |
| StreetDataType      | <p>The default search order rank of the database used to geocode the address. A value of "1" indicates that the database is first in the default search order, "2" indicates that the database is second in the default search order, and so on.</p> <p>The default database search order is specified in the Management Console with the Database Resources tool.</p> |          |                         |          |                          |          |                          |          |              |
| StreetName          | For most countries, this contains the street name.   |          |                         |          |                          |          |                          |          |              |
| StreetPrefix        | The type of street when the street type appears before the base street name.   |          |                         |          |                          |          |                          |          |              |
| StreetSuffix        | The type of street when the street type appears after the base street name.  |          |                         |          |                          |          |                          |          |              |
| TrailingDirectional | Street directional that follows the street name.   |          |                         |          |                          |          |                          |          |              |

| Response Element | Description   |
|------------------|---|
| UnitNumberHigh   | The highest unit number of the range in which the unit resides. |
| UnitNumberLow    | The lowest unit number of the range in which the unit resides.  |

# 3 - Result Codes for International Geocoding

Candidates returned by Spectrum geocoders return another class of return codes that are referred to as International Geocoding Result Codes. Each attempted match returns a result code in the `Geocoder.MatchCode` output field.

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## International Street Geocoding Result Codes (S Codes)

Street level geocoded candidates return a result code beginning with the letter S. The second character in the code indicates the positional accuracy of the resulting point for the geocoded record.

**Table 18: Street (S ) Result Codes**

| S Result Code | Description   |
|---------------|---|
| S1            | Single close match with the point located at postal code centroid.  |
| S3            | Single close match with the point located at postal code centroid.  |
| S4            | Single close match with the point located at the street centroid. For databases vintage 2014 Q4 or newer, the input house number is returned with the candidate even if no such house number was found. The S4 code is followed by letters and dashes indicating match precision. See <a href="#">Interpreting S Result Codes</a> on page 32  |
| S5            | Single close match with the point located at a street address position. The S5 code is followed by letters and dashes indicating match precision. For information about these letters, see <a href="#">Interpreting S Result Codes</a> on page 32.  |
| S7            | Single match with the point located at an interpolated point along the candidate's street segment. When the potential candidate is not an address point candidate and there are no exact house number matches among other address point candidates, the S7 result is returned using address point interpolation. The point is interpolated according to the next highest or lowest address point candidate that both intersects the segment and whose house number is contained within the range of houses of the original candidate. By using known address reference points on the street segment, the S7 point can be adjusted to a more accurate position. For Australia, the S7-----G result code is also used for single matches with G-NAF Reliability level of 3. The reliability level is returned in the output field AUS.GNAF_Reliability. For more information, see <a href="#">Australia G-NAF Database Output</a> |
| S8            | Single close match with the point located at either the single point associated with an address point candidate or at an address point candidate that shares the same house number. No interpolation is required. S8 returns are possible with point databases only.  |
| SX            | Single close match with the point located at street intersection.   |

## Interpreting S Result Codes

For S (street geocoded) international result codes, eight additional characters describe how closely the address matches an address in the database. The characters appear in the order listed in the following table. Any non-matched address elements are represented by a dash.

For example, the result code S5--N-SCZA represents a single close match that matched the street name, street suffix direction, town, and postcode. The dashes indicate that there was no match on house number, street prefix direction, or thoroughfare type. The match came from the Street Range Address database. This record would be geocoded at the street address position of the match candidate.

| Category | Description  | Example  |
|----------|--|----------|
| H        | House number   | 18       |
| P        | Street prefix direction<br>P is present if any of these conditions are satisfied: <ul style="list-style-type: none"> <li>• The candidate pre-directional matches the input pre-directional.</li> <li>• The candidate post-directional matches the input pre-directional after pre- and post-directionals are swapped.</li> <li>• The input does not have a pre-directional.</li> </ul> | North    |
| N        | Street name  | Merivale |
| T        | Street type  | St       |
| S        | Street suffix direction<br>S in result code is present if any of these conditions are satisfied: <ul style="list-style-type: none"> <li>• The candidate post-directional matches the input post-directional.</li> </ul>  | W        |



| Category   | Description   | Example        |
|------------|---|----------------|
|            | <ul style="list-style-type: none"> <li>The candidate pre-directional matches the input post-directional after pre- and post-directionals are swapped.</li> <li>The input does not have a post-directional.</li> </ul> |                |
| C          | City name   | South Brisbane |
| Z          | Postal code   | 4101           |
| A, G, or U | Database type used to obtain the match. <ul style="list-style-type: none"> <li>A—Street Range Address database.</li> <li>U—Customer (user-defined) database.</li> </ul>   | A              |

## International Postal Geocoding Result Codes (Z Codes)

Matches in the Z category indicate that a match was made at the postcode level. A postcode match is returned in either of these cases:

- You specified to match to postal code centroids. The resulting point is located at the postal code centroid with the following possible accuracy levels.
- There is no street level close match and you specified to fall back to postal code centroid.

**Table 19: Postal (Z) Result Codes**

| Z Result Code | Description  |
|---------------|--|
| Z1            | Postal Code centroid match.  |
| Z3            | Full postal code centroid match. For Canada, this is an FSALDU centroid. |

Postal level geocoded candidates return a result code beginning with the letter Z. Austria can generate a Z1 result code. Country-specific geocoders can often generate more accurate postcode results (with Z2 or Z3 result codes).

If the postal candidate comes from a user dictionary, the letter U is appended to the result. For example, Z1U indicates a postal centroid match from a custom user dictionary.

## International Geographic Geocoding Result Codes (G Codes)

Geographic level geocoded candidates return a result code beginning with the letter G. The numbers following the G in the result code provides more detailed information on the accuracy of the candidate.

**Table 20: Geographic (G) Result Codes**

| G Result Code | Description   |
|---------------|---|
| G1            | State or province centroid. match.                          |
| G2            | County (district or region) centroid match.                 |
| G3            | City or town (municipality) centroid match.                 |
| G4            | Locality (village, suburb, or neighborhood) centroid match. |

If the geographic candidate comes from a user dictionary, the letter U is appended to the result code. For example, G4U indicates a locality centroid match from a custom user dictionary.

## Reverse Geocoding Codes (R Codes)

Matches in the R category indicate that the record was matched by reverse geocoding. The second two characters of the R result code indicate the type of match found. R geocode results include an additional letter to indicate the dictionary from which the match was made.

Example reverse geocoding codes:

**Table 21: Reverse Geocoding (R) Result Codes**

| Reverse Geocoding Code | Description  |
|------------------------|--|
| RS8A                   | Point/parcel level precision for reverse geocoding. Candidate returned from address dictionary.  |
| RS5A                   | Interpolated street candidate for reverse geocoding. Candidate returned from address dictionary. |
| RS4A                   | Street centroid candidate for reverse geocoding. Candidate returned from address dictionary.     |

If the reverse geocoded candidate comes from a user dictionary, the letter U is appended to the result. For example, RS8U indicates a point/parcel level reverse geocode match from a custom user dictionary.

## Non-match Codes

The following result codes indicate no match was made:

- **N**—No close match.
- **NX**—No close match for street intersections.
- **ND**—Spectrum™ Technology Platform could not find the geocoding database for the given postal code or municipality/state/province.

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3001 Summer Street  
Stamford CT 06926-0700  
USA

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