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Spectrum Technology Platform

Enterprise Geocoding Guide for Australia - API

Version 2020.1.0

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1 - 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. addresses. To geocode U.S. addresses, use GeocodeUSAddress.

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, GeocodeAddressGlobal will become available.

GeocodeAddressGlobal is an optional component of Enterprise Geocoding.

In this section

2 - 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.

In this section

Input Fields

For Australia, GeocodeAddressGlobal takes a street 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.

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

AddressLine1

For most countries, the AddressLine1 field should contain the address line that has the street name and building number in it.

This field can also contain the full address. For more information, see **Single Line Input** on page 9.

For all countries except Argentina, Great Britain, and Japan, this field can contain a street intersection. To specify a street intersection, use double ampersand (&&) to separate the streets. For more information, see **Street Intersection Input** on page 10.

Table 1: Input Fields for Australia

columnName	Description
AddressLine1	• The address line containing the street name and building number. **4360 DUKES RD** KALGOORLIE WA 6430 • This field can also contain the full address. For more information, see **Single Line Input** on page 9 • For all countries except Argentina, Great Britain, and Japan, this field can contain a street intersection. To specify a street intersection, use double ampersand (&&) to separate the streets. For more information, see **Street Intersection Input** on page 10.
AddressLine2	This field is not used in this country.

columnName	Description
City	The city or town name. For most countries, your input address should use the official city name or alias.
County	The meaning of county varies by country. The Local Government Authority (LGA) name. • AUS (Australia)—The Local Government Authority (LGA)
FirmName	Company or place name. For example: **Pitney Bowes** 4360 Dukes Rd Kalgoorlie WA 6430
HouseNumber	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. **Note:** The house number specified in the HouseNumber field takes precedence over any house number specified in the AddressLine1 field.
LastLine	The last line of the address. 4360 DUKES RD **KALGOORLIE WA 6430**
Locality	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 last line of the address with the postcode. • AUS (Australia)—Not used
PostalCode	The postal code in the appropriate format for the country. Australia has a four-digit postal code system. In general, the first digit represents a state or territory, the second digit represents a region with a state, and digits three and four representing towns. For more information, see **Address Guidelines for Australia** on page 7.

columnName	Description
StateProvince	The meaning of State/Province varies by country. • AUS (Australia)—State

Address Input Guidelines

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

Address Guidelines for Australia

Enterprise Geocoding offers several AUS databases including the PSMA street G-NAF point databases. Contact your sales representative for more information about licensing these databases. Your Enterprise Geocoding database release notes identify the current database vintages.

Follow these guidelines to provide input that GeocodeAddressGlobal can successfully geocode. For additional information about Australia addresses, see the Australia Post website: **www.auspost.com.au**.

- **Required fields**—Addresses must contain either a city or a postal code.
- **House numbers and unit information**—The house number pinpoints the location of the address. Unit input can be in one of two formats, as shown in the following examples:
  - Flat 2, 17 Jones St.
  - Apt 19, 123 Main St., where Apt is the unit type and 99 is the unit number. In this format, you must specify a valid unit type, otherwise the address will not be geocoded correctly. For a listing of valid unit types, see **www.auspost.com.au**.
  - 99-123 Main St. For an address derived from the G-NAF database, this address is a unique house number and is geocoded as a single delivery point, not as a range.
- **Directional suffixes**—Use directional suffixes wherever possible. This is especially true in towns and cities that consist mainly of numbered streets. These streets can only be distinguished by their directional suffixes and street types. They also distinguish addresses on streets that change direction. For example: 123 Queen St W and 123 Queen St E would have very different coordinates.

- **Street types**—These distinguish different streets of the same name. For example, Main Avenue and Main Street are two entirely different entities. Using types is not essential, but it adds precision to your data. For a listing of street types, see **www.auspost.com.au**.
- **City/suburb name**—Enter the city/suburb name in the City field. Note that all input addresses must contain either a city or a postal code. If the geocoder does not make a close match on the street in the specified suburb, it can make a close match on the Local Government Area (LGA). Local Government Area (LGAs) do not encompass all of Australia. For example, LGAs do not cover extensive northern parts of South Australia, a large part of the Northern Territory, and the Australian Capital Territory. An LGA can include a number of official suburbs. It is best to use the suburb name for geocoding purposes, but it is possible to get a match on the LGA (or to return LGA information) in geocoded results.
- **Postal code**—All postcodes consist of four digits. While there are exceptions, the general format of postcodes is as follows:

> **Note:** These are general guidelines, and there are exceptions to these postcode number ranges.

- Digit 1 represents the state or territory, within the following general conventions:

2	NSW
2600 and 2900	ACT
3	VIC
4	QLD
5	SA
6	WA
7	TAS
0	NT

- Digit 2 represents a region within the state. State or territorial capitals usually have a 0 or 1 as the second digit.

• Digits 3 and 4 represent towns. Major towns usually have a 0 as the last digit (or sometimes as the last two digits).

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 town.
- *County* is the county or local administrative name.
- *StateProvince* is the postal abbreviation for the state or province.
- *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,

```
18 Merivale St,South Brisbane,QLD,4101
```

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: `Ocean Ave && New South Head Rd`
City: `Woollahra`

> **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.

3 - Options

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

In this section

Geocoding Options

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

> **Note:** As Enterprise Geocoding transitions its administrative tasks to a web-based Management Console, labels for the options may use different wording than what you see in Enterprise Designer. There is no difference in behavior.

Table 2: Geocoding Options for Australia

optionName	Description	
GeocodeLevel	Specifies how precisely you want to geocode addresses. One of the following:	
	StreetAddress	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.
	PostalCentroid	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 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.
	GeographicCentroid	The geocoder attempts to geocode addresses to the geographic centroid of a city or state.

optionName	Description
Interpolation	Specifies whether to perform address point interpolation. This option only works if you have a point database installed. This option is available for selected countries only.
	Address point interpolation uses point data to refine geocode results. By default, the geocoding process estimates the location of an address based on the street numbers at either end of street segment. For example, if a street segment runs from 100 Main St. to 200 Main St., then a request for 150 Main St. will return a location in the middle of the segment. With interpolation, the geocoder finds the position of 180 Main St. in the point data, and it is about two-thirds of the way down the street. Using this information, the geocoder can estimate the position of 150 Main St. based on 100 and 180 Main St. In this case, the geocoder estimates the location of the address slightly away from the center of the segment.
	Y Yes, perform address point interpolation.
	N No, do not perform address point interpolation.
FallbackToGeographic	Specifies whether to attempt to determine a geographic region centroid when an address-level geocode cannot be determined.
	Y Yes, determine a geographic centroid when an address-level centroid cannot be determined. Default.
	N No, do not determine a geographic centroid when an address-level centroid cannot be determined.
FallbackToPostal FallbackToPostal	Specifies whether to attempt to determine a postal code centroid when an address-level geocode cannot be determined.
	Y Yes, determine a postal code centroid when an address-level centroid cannot be determined. Default.
	N No, do not determine a postal code centroid when an address-level centroid cannot be determined.

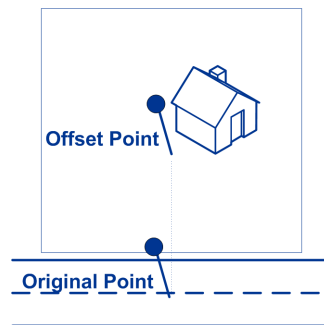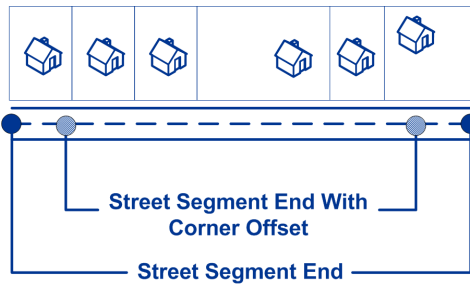| optionName	Description
OffsetFromStreet	Indicates the offset distance from the street segments to use in street-level geocoding. The distance is specified in the units you specify in the OffsetUnits option.
	The default value varies by country. For most countries, the default is 7 meters.
	For Austria, Germany, and Australia the default is 10 meters.
	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 40 feet means that the geocode will represent a point 40 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 diagram below 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.

optionName	Description
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. **Street Segment End With Corner Offset** **Street Segment End**
OffsetUnits	Specifies the unit of measurement for the street offset and corner offset options. One of the following: • Feet • Miles • Meters • Kilometers The default is Meters.

optionName	Description
GNAFPointType	This option is available for Australia only.
	For street address matching, specifies whether to return the parcel latitude/longitude or the street frontage latitude/longitude. This option is available only if you have the G-NAF database installed, and the database selected in the **Database** list on the Data tab includes the G-NAF database. This option only affects addresses matched to the G-NAF database.
	One of the following:
	P In a street address match, return the exact location of the parcel. This is the standard G-NAF point which is the exact authoritative point returned by the G-NAF database. Default.
	S In a street address match, return the street frontage point for the parcel. The street frontage point is 12.5 meters from the front boundary of the parcel. Street frontage points are more suitable for routing applications.
Return8DecimalPlaceParcelLatLong	This option is available for Australia only.
	Specifies whether to return the original latitude and longitude, precise up to eight digits after the decimal. This is the latitude/longitude that the candidate matched to in the G-NAF database. These are the original coordinates directly from the G-NAF data prior to truncation or rounding. This option is available only if you have the G-NAF database installed, and the database selected in the **Database** list on the Data tab includes the G-NAF database. This option only affects addresses matched to the G-NAF database.
	Y Yes, return the original latitude/longitude, up to eight digits after the decimal.
	N No, do not return the original latitude/longitude.
CoordinateSystem	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).
	Each country supports different coordinate systems. Depending on the country, you have one or more of the following options:
	EPSG:4283 Also known as the GDA94 coordinate system.
	EPSG:4326 Also known as the WGS84 coordinate system.
	EPSG:27200 Also known as the NZGD49 coordinate system.

optionName	Description
IncludeInputs	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.

You can specify parsed input returns for a specific country. For example, a REST API example for Canada is:

```
Option.CAN.IncludeInputs=Y
```

> **Note:** 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.

Parsed Address Input elements are returned in separately labeled fields names with a .Input extension. For example:

- FormattedInputStreet.Input
- City.Input
- Country.Input
- HouseNumber.Input
- Locality.Input
- PostalCode.Base.Input
- StreetName.Input
- StreetSuffix.Input

Other labeled fields are possible depending on the input address, country, and data source.

> **Note:** 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

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.

For intersection addresses, the first entered street is returned in StreetName.Input and the second entered street name is returned in IntersectionIdStreet2.Input.

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.

> **Note:** As Enterprise Geocoding transitions its administrative tasks to a web-based Management Console, labels for the options may use different wording than what you see in Enterprise Designer. There is no difference in behavior.

Table 3: Matching Options for Australia

optionName	Description
KeepMultimatch	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.
	If you select this option, specify the maximum number of candidates to return using the MaxCandidates option (see below).
	Y Yes, return candidates when multiple candidates are found. Default.
	N No, do not return candidates. Addresses that result in multiple candidates will fail to geocode.
MaxCandidates	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.

optionName	Description
ReturnRanges	Specifies whether to return address range information. If you enable this option, the output field `Ranges` will be included in the output.
	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.
	Y Yes, return address range information.
	N No, do not return address range information. Default.
MaxRanges	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.
MaxRangeUnits	If you choose to return ranges, this option specifies the maximum number of units (for example, apartments or suites) to return for each range.
	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.
CloseMatchesOnly	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 **MustMatch** options. Address candidates are ranked according to how closely the input address matches these preferences.
	Y Yes, return only close matches.
	N No, do not return only close matches. Default.
MatchMode	Specifies how to determine whether a candidate is a close match. One of the following:
	CustomMode 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 **MustMatch<Element>** options to specify the address elements you want. This is the default value for most countries.
	RelaxedMode All candidate addresses are considered a close match.

optionName	Description
MustMatchInput	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.
	Y Yes, a candidate must match all input to be considered a close match.
	N No, a candidate does not have to match all input to be considered a close match. Default.
MustMatchHouseNumber	Specifies whether candidates must match the house number to be considered a close match.
	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.
	Y Yes, a candidate must match the house number to be considered a close match.
	N No, a candidate does not have to match the house number to be considered a close match.
MustMatchStreet	Specifies whether candidates must match the street name to be considered a close match.
	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.
	Y Yes, a candidate must match the street name to be considered a close match.
	N No, a candidate does not have to match the street name to be considered a close match.
MustMatchLocality	• AUS (Australia)—Not used
	Y Yes, a candidate must match the locality to be considered a close match.
	N No, a candidate does not have to match the locality to be considered a close match.

optionName	Description
MustMatchCity	Specifies whether candidates must match the city to be considered a close match. 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.
	Y Yes, a candidate must match the city to be considered a close match.
	N No, a candidate does not have to match the city to be considered a close match.
MustMatchCounty	Specifies whether candidates must match the county (or equivalent) to be considered a close match. The meaning of county varies for different countries.
	• AUS (Australia)—The Local Government Authority (LGA)
	One of the following:
	Y Yes, a candidate must match the county to be considered a close match.
	N No, a candidate does not have to match the county to be considered a close match.
MustMatchStateProvince	Specifies whether candidates must match the state or province (or equivalent) to be considered a close match.
	• AUS (Australia)—State
	One of the following:
	Y Yes, a candidate must match the state or province to be considered a close match.
	N No, a candidate does not have to match the state or province to be considered a close match.

optionName	Description
MustMatchPostalCode	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.
	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.
	Y Yes, a candidate must match the postal code to be considered a close match.
	N No, a candidate does not have to match the postal code to be considered a close match.
PreferPostalCodeOverCity	Specifies whether to return a close match when the postal code and street match exactly but the city does not. If you enable this option, the City input field is ignored if the postal code and street address are an exact match. If you do not enable this option, there may be situations where street address and postal code input are an exact match but the city name is not, and close matches are not returned.
	For example, without this option enabled, the following input address would return no close matches:
	`5 East St` `GLENROY VIC 3046`
	With this option enabled, this same input address would return the following close match:
	`5 EAST ST` `HADFIELD VIC 3046`
	Y Yes, return close matches if the postal code and street address are an exact match and ignore the city input.
	N No, do not return close matches if the postal code and street address are an exact match and the city is not. Default.

optionName	Description
SortCandidatesUsingLocale	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).
	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.
	Y Yes, candidates are sorted and returned based on input language.
	N No, candidates are returned in the order that the dictionary was added to the database, regardless of input language.

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 Precisely 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.

For Australian geocoding, to achieve the best geocoding spatial precision use the G-NAF database. This provides point-level geocoding that places points within the land parcel boundary for a given address. The G-NAF database requires an additional license. Contact your sales representative for more information.

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

Table 4: Data Options for Australia

optionName	Description
Database	Specifies the database to be used for geocoding. Only databases that have been defined in the Management Console are available.
DatabasePreference	Specifies which geocoding databases to use. One of the following:

Specifies which geocoding databases to use. One of the following:

PreferCustom	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.
PreferStandard	Use both standard databases and custom databases, but give preference to candidates from standard databases.
CustomOnly	Use only custom databases. Ignore standard databases.
StandardOnly	Use only standard databases. Ignore custom databases.
Both	Use both standard databases and custom databases. In cases where candidates are returned from both, the standard database is preferred. Default.

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 **Result Codes for International Geocoding** on page 41.

DatabaseSearchOrder	The name of one or more database resources to use in the search process. Use the database name specified in the Management Console.

You can specify multiple database resources. If you specify more than one database, list them in order of preference.

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.

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.

4 - 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. The information is returned in upper case.

If you are using the API, the output returned is in the `DataTable` class. For more information, see the Spectrum Technology Platform API Guide.

In this section

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.

> **Note:** The output casing for fields for Great Britain has changed to upper case, as of the Q1 2016 Data update.

Table 5: Address Output for Australia

columnName	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.
City.Input	The municipality name as it was input. For Japan, the municipality subdivision (sub-city)

columnName	Description
Country	The three-letter ISO 3166-1 Alpha 3 country code.
	For Australia, the country code is AUS.
	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.
Country.Input	The three-letter ISO 3166-1 Alpha 3 country code as it was input.
	For Australia, the country code is AUS.
	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.
County	The meaning of county varies by country.
	The Local Government Authority (LGA) name.
	• AUS (Australia)—The Local Government Authority (LGA)
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	
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.

columnName	Description
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. **E** Even **O** Odd **B** Both **U** Unknown
IntersectionIdStreet2.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.
Locality	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 last line of the address with the postcode. • AUS (Australia)—Not used
Locality.Input	The locality as it was input. • AUS (Australia)—Not used

columnName	Description
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. To specify the number of ranges to return for each candidate, use the `MaxRanges` option.
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. To specify the number of units to return for each range, use the `MaxRangeUnits` option.
PostalCode	The postal code 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.
PrivateMailbox	This field is not currently used.

columnName	Description
Ranges	This is a list field containing the address ranges that exist on the street segment where the candidate address is located. 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. The Ranges field contains the following sub-fields:

Address	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.
AdditionalFields	A listing of country-specific information related to the address. The information contained in AdditionalFields varies by country.
HouseNumberHigh	The highest address number for the range.
HouseNumberLow	The lowest address number for the range.

SegmentParity		Indicates the side of the street where the range is located. One of the following:
	0	It is not known which side of the street the range is located on.
	1	The range is on the left side of the street.
	2	The range is on the right side of the street.

HouseNumberParity		Indicates whether the range contains odd or even address numbers. One of the following:
	0	The range contains both odd and even address numbers.
	1	The range contains odd address numbers
	2	The range contains even address numbers.
	-1	It is not known whether the range contains odd or even house numbers.

columnName	Description

	TotalRangeUnitsReturned	The number of unit ranges returned for the address. A unit is an address within a building, such as an apartment or suite.
	RangeUnits	A list of the ranges of units within the building. An example of units are apartments or suites.
	Address	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.
	UnitNumberHigh	The highest unit number.
	UnitNumberLow	The lowest unit number.
SegmentCode		A unique ID that identifies a street segment.
SegmentParity		Indicates which side of the street has odd numbers.
	L	Left side of the street
	R	Right side of the street
	B	Both sides of the street
	U	Undetermined
StateProvince		The meaning of State/Province varies by country. • AUS (Australia)—State
StreetDataType		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. The default database search order is specified in the Management Console.
StreetName		For most countries, this contains the street name.
StreetPrefix		The type of street when the street type appears before the base street name.

columnName	Description
StreetSuffix	The type of street when the street type appears after the base street name.
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 **Result Codes** on page 38

Geocode Output

Table 6: Geocode Output for Australia

columnName	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.

Australia G-NAF Database Output

The following table lists output fields that are unique to the Australian Geocoded National Address File (G-NAF®) database. G-NAF is an optional database that is available for all six states and two territories. G-NAF is the only authoritative Australian national index of locality, street and number, validated with geographic coordinates.

Table 7: Australia G-NAF Output

columnName	Description
AUS.GNAF_ADDRESS_CLASS	The Address_Class is constructed using a combination of elements from the G-NAF Data Dictionary source tables. The components of the Address_Class field are: **A** Alias address record **P** Principal address record **PP** Principal primary address record **PS** Principal secondary address record **AP** Alias primary address record **AS** Alias secondary address record

columnName	Description
AUS.GNAF_CONFIDENCE	A number indicating how many G-NAF datasets the address is found in. A higher confidence level means that the same address was found in more data contributor sources. One of the following:

\<number\>	The number of datasets the address was found in, minus 1. For example, a value of 0 indicates that the address was found in one contributor's dataset, a value of 1 indicates that the address was found in two contributors' datasets, a value of 2 indicates that the address was found in three contributors' datasets, and so forth.
-1	The address could not be found in any G-NAF dataset.

columnName	Description
AUS.GNAF_EIGHT_DECIMAL_PLACE_LATITUDE	The parcel latitude, precise to eight digits after the decimal. This is the latitude that the candidate matched to in the G-NAF database. These are the original coordinates directly from the G-NAF data prior to truncation or rounding. This field is only returned if you specify **Return8DecimalPlaceLatLong=Y**.
AUS.GNAF_EIGHT_DECIMAL_PLACE_LONGITUDE	The parcel longitude, precise to eight digits after the decimal. This is the longitude that the candidate matched to in the G-NAF database. These are the original coordinates directly from the G-NAF data prior to truncation or rounding. This field is only returned if you specify **Return8DecimalPlaceLatLong=Y**.

columnName	Description
AUS.GNAF_GEOCODE_LEVEL	A number indicating the level o f geocode for the address. Every principal address within the G-NAF database has at least a locality level geocode. They may also have a street level geocode and a point level geocode.

One of the following:

0	No geocode.
1	Parcel level geocode only (no locality or street level geocode).
2	Street level geocode only (no locality or parcel level geocode).
3	Street and parcel level geocodes (no locality geocode).
4	Locality level geocode only (no street or parcel level geocode).
5	Locality and parcel level geocodes (no street level geocode).
6	Locality and street level geocodes (no parcel level geocodes).
7	Locality, street and parcel level geocodes.

columnName	Description
AUS_GNAF_PARCEL_ID	The Parcel ID field is the generic parcel id field provided by custodial data, and represents a Lot on Plan description that is useful for government agencies. The exact format varies. G-NAF source data has over 7 million records with a Parcel_ID. The Australia geocoder supplements this to populate over 12,730,000 G-NAF records with a Parcel_ID field.
AUS.GNAF_PID	The G-NAF Persistent Identifier (G-NAF PID) is a 14-character alphanumeric string that uniquely identifies each G-NAF address. The PID is constructed from a combination of the major address fields of the G-NAF database. An example of a G-NAF PID is: GAACT718519668

columnName	Description
AUS.GNAF_RELIABILITY	A number indicating the geocode precision. Reliability is related to the dictionary used to determine the geocode. Data with geocoded reliability levels 1, 2, and 3 is contained in the GNAF123 Dictionary. This is point (parcel) level geocoded data. Data with geocoded reliability levels 4, 5, and 6 is contained in the GNAF456 Dictionary. This contains non-parcel centroid geocoded data.

1 Geocode accuracy recorded to appropriate surveying standard. For example, this could apply to an address level geocode that was manually geocoded. Geocode resolution is sufficient to place the centroid within address site boundary with a GPS.

2 Geocode accuracy sufficient to place centroid within address site boundary. For example, this could apply to an address level geocode that was automatically calculated as the centroid of the corresponding cadastre parcel.

3 Geocode accuracy sufficient to place centroid near (or possibly within) address site boundary. For example, this could apply to an address level geocode that was automatically calculated by calculating where on the road the address was likely to appear based upon other bounding geocoded addresses.

4 Geocode accuracy sufficient to associate address site with a unique road feature. For example, this could apply to a street level geocode that was automatically calculated by using the road centerline reference data.

5 Geocode resolution sufficient to associate address site with a unique locality or neighborhood. For example, this could apply to a locality level geocode that was automatically calculated as the centroid of the locality.

6 Geocode resolution sufficient to associate address site with a unique region. For example, this could apply to a locality level geocode that was derived from topographic feature.

columnName	Description
AUS.GNAF_SA1	The Statistical Area Level 1 (SA1) field as the second smallest geographic area defined in the Australian Statistical Geography Standard (ASGS). Mesh Block is the smallest unit. The SA1 is designed for use in the Census of Population and Housing as the smallest unit for the processing and release of Census data. An SA1 is represented by a unique seven digit code.

columnName	Description
AUS.LEVEL_NUMBER	The number of a floor or level in a multistory building. For example,
	Floor 2, 17 Jones Street
	The G-NAF database includes level information for some Australian 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, that information is returned 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.
AUS.LEVEL_TYPE	The label used for a floor of a multistory building. For example, "Level" or "Floor". In this example, the level type is "Level":
	Suite 3 **Level 7**, 17 Jones Street
	In this example, Suite 3 is a unit.
	The G-NAF database includes level information for some Australian 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, that information is returned 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.

columnName	Description
AUS.MESH_BLOCK_ID	A Meshblock is the smallest geographic unit for which statistical data is collected by the Australian Bureau of Statistics (ABS). Meshblocks usually contain a minimum of 20 to 50 households. This is about one fifth the size of a Collection District (CD). You can use the Meshblock ID to do additional attributions against your own data.
AUS.LOT_NUMBER	Lot numbers are returned for G-NAF candidates because some rural addresses do not have adequate physical or house number information.
AUS.STREET_TYPE_ABB	This is an abbreviation for the street type. For example, EX is an abbreviation for Extension and FTRL is an abbreviation for Firetrail.

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.

> **Note:** As Enterprise Geocoding transitions its administrative tasks to a web-based Management Console, labels for the options may use different wording than what you see in Enterprise Designer. There is no difference in behavior.

Table 8: Result Code Output for Australia

columnName	Description
Geocoder.MatchCode	Indicates how closely the input address matches the candidate address. For more information, see **Result Codes for International Geocoding** on page 41.

columnName	Description
IsCloseMatch	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. **Y** Yes, the address is a close match. **N** No, the address is not a close match.
MultiMatchCount	For street address geocoding, the number of matching address positions found for the specified address. For intersection geocoding, the number of matching street intersection positions found for the specified addresses.
Status	Reports the success or failure of the match attempt **null** Success **F** Failure
Status.Code	If the geocoder could not process the address, this field will show the reason. • Internal System Error • No Geocode Found • Insufficient Input Data • Multiple Matches Found • Exception occurred • Unable to initialize Geocoder • No Match Found
Status.Description	If the geocoder could not process the address, this field will show a description of the failure. **Problem + explanation** — Returned when Status.Code = Internal System Error. **Geocoding Failed** — Returned when Status.Code = No Geocode Found. **No location returned** — Returned when Status.Code = No Geocode Found. **No Candidates Returned** — The geocoder could not identify any candidate matches for the address. **Multiple Candidates Returned and Keep Multiple Matches not selected** — The address resulted in multiple candidates. In order for the candidate address to be returned, you must specify `KeepMultimatch=Y`.

columnName	Description
LocationPrecision	A code describing the precision of the geocode. One of the following:

0	No coordinate information is available for this candidate address.
1	Interpolated street address.
2	Street segment midpoint.
3	Postal code 1 centroid.
4	Partial postal code 2 centroid.
5	Postal code 2 centroid.
6	Intersection.
7	Point of interest. This is a placeholder value. Spectrum databases do not have POI data, so it is not possible to get this return.
8	State/province centroid.
9	County centroid.
10	City centroid.
11	Locality centroid.
12 - 15 (LocationPrecision codes)	For AUS, 12 indicates a single close match to a postal (PO Box) location. This can be generated from the standard Street Range database only (not the G-NAF database). For most countries, LocationPrecision codes 12 through 15 are reserved for unspecified custom items.
12	Single close match to a postal (PO Box) location. This can be generated from the standard street range database only (not the G-NAF database).
13	Additional point precision for unspecified custom item.
14	Additional point precision for unspecified custom item.
15	Additional point precision for unspecified custom item.
16	The result is an address point.
17	The result was generated by using address point data to modify the candidates segment data.
18	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.

columnName	Description
StreetDataType	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.

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 number was found. The S4 code is followed by letters and dashes indicating match precision. See **Interpreting S Result Codes** on page 42
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 **Interpreting S Result Codes** on page 42.

S Result Code	Description
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 **Australia G-NAF Database Output** on page 33
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.
	For Australia, the S8-------G result code is also used for single matches with G-NAF Reliability levels of 1or 2 (the highest level of G-NAF Reliability. The reliability level is returned in the output field AUS.GNAF_Reliability.
S0	single match, no coordinates available (very rare occurrence).
SG	For Australia, single close match with the point at the center of a locality, or Locality level geocode derived from topographic feature. An SG-------G result code is associated with G-NAF Reliability Level 5 (locality or neighborhood) or with Level 6 (unique region). The reliability level is returned in the output field AUS.GNAF_Reliability. For more information, see **Australia G-NAF Database Output** on page 33.
SP	For Australia, single close match to a postal (PO Box) location. This can be generated from the Street Range Address database only (not the G-NAF database).
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 P is present if any of these conditions are satisfied: • The candidate pre-directional matches the input pre-directional. • The candidate post-directional matches the input pre-directional after pre- and post-directionals are swapped. • The input does not have a pre-directional.	North
N	Street name	Merivale
T	Street type	St
S	Street suffix direction S in result code is present if any of these conditions are satisfied: • The candidate post-directional matches the input post-directional. • The candidate pre-directional matches the input post-directional after pre- and post-directionals are swapped. • The input does not have a post-directional.	W
C	City name	South Brisbane
Z	Postal code	4101
A, G, or U	Database type used to obtain the match. • A—Street Range Address database. • G—G-NAF Point Address Dictionary (Australia only). • U—Customer (user-defined) database.	A

International PO Box Geocoding Result Codes (B Codes)

Geocoding AUS data with PO Box or GPO Box as input returns candidates with a new code B1. This means that a match to a post office lookup table was successful. Geocode AUS does not know if the exact PO Box is valid. It returns a post office location with a standardized version of the input PO Box information. The lookup process previously returned a result code of SP. This result code is returned in the additionalFields under the CandidateAddress.LEGACY_RESULT_CODE key.

Table 10: PO Box (B) Result Codes

B Result Code	Description
B1	Match to a lookup table of post office box locations given the post code and/or city. It does not match to the actual PO Box or GPO box.

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 11: 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. Australia 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 about the accuracy of the candidate.

Table 12: 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.
	For Australia, Local Government Authority (LGA) information can be returned from the Street Range Address Database only (not the G-NAF database).
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 13: Reverse Geocoding (R) Result Codes

Reverse Geocoding Code	Description
RS8A	Point/parcel level precision for reverse geocoding. Candidate returned from address dictionary.

Reverse Geocoding Code	Description
RS8G	Point/parcel level precision. Candidate returned from Australia G-NAF database with G-NAF Reliability level of 1 or 2.
RS7G	Candidate returned from Australia G-NAF database with G-NAF Reliability level of 3.
RS5A	Interpolated street candidate for reverse geocoding. Candidate returned from address dictionary.
RS4A	Street centroid candidate for reverse geocoding. Candidate returned from address dictionary.
RS4G	Candidate returned from Australia G-NAF database with a G-NAF Reliability level of 4 (associated with a unique road feature)
RSGG	Candidate returned from Australia G-NAF database with G-NAF Reliability Level 5 (locality or neighbourhood) or with Level 6 (unique region.)

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.

5 - 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 reverese 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, ReverseGeocodeAddressGlobal will be available.

In this section

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.

> **Note:** Specify input using the `DataTable` class. For more information, see the Spectrum Technology Platform API Guide.
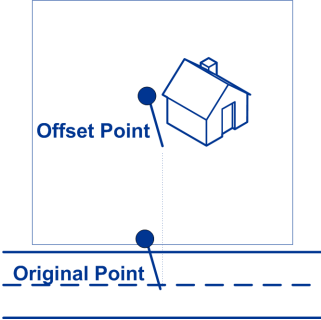
Table 14: ReverseGeocodeGlobal Input

columnName	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: • The name of the country in English. • The two-character ISO 3116-1 alpha-2 country code. • The three-character ISO 3116-1 alpha-3 country code.
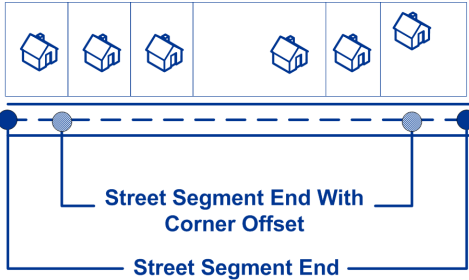
Options

Geocoding Options

Table 15: Geocoding Options for Australia

optionName	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	The units in which the search distance is specified. One of the following: • Feet • Miles • Meters • Kilometers

optionName	Description
OffsetFromStreet	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.
	The default value varies by country. For most countries, the default is 7 meters.
	For Austria, Germany, and Australia the default is 10 meters.
	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 40 feet means that the geocode will represent a point 40 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 diagram below 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.

optionName	Description

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
- Meters
- Kilometers

The default is Meters.

CoordinateSystem

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).

Each country supports different coordinate systems. Depending on the country, you have one or more of the following options:

EPSG:4283	Also known as the GDA94 coordinate system.
EPSG:4326	Also known as the WGS84 coordinate system.
EPSG:27200	Also known as the NZGD49 coordinate system.

Matching Options

Table 16: Matching Options for Australia

optionName	Description
KeepMultimatch	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.
	If you select this option, specify the maximum number of candidates to return using the MaxCandidates option (see below).
	Y Yes, return candidates when multiple candidates are found. Default.
	N No, do not return candidates. Addresses that result in multiple candidates will fail to geocode.
MaxCandidates	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.
SortCandidatesUsingLocale	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).
	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.
	Y Yes, candidates are sorted and returned based on input language.
	N No, candidates are returned in the order that the dictionary was added to the database, regardless of input language.

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 17: Data Options for Australia

optionName	Description
DatabaseSearchOrder	The name of one or more database resources to use in the search process. Use the database name specified in the Management Console. You can specify multiple database resources. If you specify more than one database, list them in order of preference. 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. 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.

Output

Table 18: Reverse Geocode Address Global Output Fields

columnName	Description
AddressLine1	First line of the address.
AddressLine2	Second line of the address.
ApartmentLabel	The type of unit, such as apartment, suite, or lot.
ApartmentNumber	Unit number.

columnName	Description
City	The municipality name.
County	The meaning of county varies by country. The Local Government Authority (LGA) name. • AUS (Australia)—The Local Government Authority (LGA)
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 **Reverse Geocoding Codes (R Codes)** on page 45.
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. **E** Even **O** Odd **B** Both **U** Unknown

columnName	Description
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	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 last line of the address with the postcode. • AUS (Australia)—Not used
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. To specify the number of ranges to return for each candidate, use the `MaxRanges` option.
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. To specify the number of units to return for each range, use the `MaxRangeUnits` option.
PostalCode	The postal code 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.

columnName	Description
PrivateMailbox	This field is not currently used.
SegmentCode	A unique ID that identifies a street segment.
SegmentParity	Indicates which side of the street has odd numbers. **L** Left side of the street **R** Right side of the street **B** Both sides of the street **U** Undetermined
StateProvince	The meaning of State/Province varies by country. • AUS (Australia)—State
StreetDataType	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. The default database search order is specified in the Management Console.
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.

columnName	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.

6 - GNAFPIDLocationSearch

GNAFPIDLocationSearch identifies the address and latitude/longitude coordinates for a Geocoded National Address File Persistent Identifier (G-NAF PID). The G-NAF PID is a 14-character alphanumeric string that uniquely identifies each G-NAF address in the G-NAF database (a database of Australian locations). The PID is constructed from a combination of the major address fields of the G-NAF database. An example of a G-NAF PID is:

GAACT718519668

> **Note:** You must have the G-NAF database installed to use GNAFPIDLocationSearch.

GNAFPIDLocationSearch is part of the Geocoding Address AUS component.

For more information, see **Enterprise Geocoding**.

In this section

G-NAF PID Input

GNAFPIDLocationSearch takes a G-NAF PID as input and returns the address and latitude/longitude coordinates for a Geocoded National Address File Persistent Identifier (G-NAF PID).

Note: GNAF PID Location Search functionality is not supported by the Geocode Address Global component. You must use the Geocode Address AUS component for this functionality.

Table 19: GNAFPIDLocationSearch Input

columnName	Format	Description
GNAFPID	String	The 14-character G-NAF persistent identifier you want to look up. For example: **GAACT718519668**

Note: Specify input using the `DataTable` class. For more information, see the Spectrum Technology Platform API Guide.

G-NAF PID Location Search Options

GNAFPIDLocationSearch includes an option to select the G-NAF database for the PID search.

G-NAF Geocoding Options

Table 20: GNAFPIDLocationSearch Geocoding Options

optionName	Description
GNAFPointType	Specifies whether to return the parcel latitude/longitude or the street frontage latitude/longitude. This option is only available if you have the G-NAF database installed. This option only affects addresses matched to the G-NAF database. One of the following: **P** In a street address match, return the exact location of the parcel. This is the standard G-NAF point which is the exact authoritative point returned by the G-NAF database. Default. **S** In a street address match, return the street frontage point for the parcel. The street frontage point is 12.5 metres from the front boundary of the parcel. Street frontage points are more suitable for routing applications.
Return8DecimalPlaceLatLong	Specifies whether to return the original latitude and longitude, precise up to eight digits after the decimal. This is the latitude/longitude that the candidate matched to in the G-NAF database. These are the original coordinates directly from the G-NAF data prior to truncation or rounding. This option is only available if you have the G-NAF database installed. This option only affects addresses matched to the G-NAF database. **Y** Yes, return the original latitude/longitude, up to eight digits after the decimal. **N** No, do not return the original latitude/longitude.

G-NAF PID Data Options

Table 21: GNAFPIDLocationSearch Data Options

optionName	Description
Database	Specifies the database to use to look up the parcel. Use the database name specified in the Management Console. For more information, see the *Spectrum Technology Platform Administration Guide*. **Note:** Only database resources that contain G-NAF databases are available in this list.

Output

G-NAF Output

The following table lists output fields that are unique to the Australian Geocoded National Address File (G-NAF[®]) database. G-NAF is an optional database that is available for all six states and two territories. G-NAF is the only authoritative Australian national index of locality, street and number, validated with geographic coordinates.

Table 22: Australia G-NAF Output

columnName	Description
AUS.GNAF_ADDRESS_CLASS	The Address_Class is constructed using a combination of elements from the G-NAF Data Dictionary source tables. The components of the Address_Class field are: **A** Alias address record **P** Principal address record **PP** Principal primary address record **PS** Principal secondary address record **AP** Alias primary address record **AS** Alias secondary address record
AUS.GNAF_CONFIDENCE	A number indicating how many G-NAF datasets the address is found in. A higher confidence level means that the same address was found in more data contributor sources. One of the following: **<number>** The number of datasets the address was found in, minus 1. For example, a value of 0 indicates that the address was found in one contributor's dataset, a value of 1 indicates that the address was found in two contributors' datasets, a value of 2 indicates that the address was found in three contributors' datasets, and so forth. **-1** The address could not be found in any G-NAF dataset.
AUS.GNAF_EIGHT_DECIMAL_PLACE_LATITUDE	The parcel latitude, precise to eight digits after the decimal. This is the latitude that the candidate matched to in the G-NAF database. These are the original coordinates directly from the G-NAF data prior to truncation or rounding. This field is only returned if you specify **Return8DecimalPlaceLatLong=Y**.
AUS.GNAF_EIGHT_DECIMAL_PLACE_LONGITUDE	The parcel longitude, precise to eight digits after the decimal. This is the longitude that the candidate matched to in the G-NAF database. These are the original coordinates directly from the G-NAF data prior to truncation or rounding. This field is only returned if you specify **Return8DecimalPlaceLatLong=Y**.

columnName	Description
AUS.GNAF_GEOCODE_LEVEL	A number indicating the level o f geocode for the address. Every principal address within the G-NAF database has at least a locality level geocode. They may also have a street level geocode and a point level geocode. One of the following: **0** No geocode. **1** Parcel level geocode only (no locality or street level geocode). **2** Street level geocode only (no locality or parcel level geocode). **3** Street and parcel level geocodes (no locality geocode). **4** Locality level geocode only (no street or parcel level geocode). **5** Locality and parcel level geocodes (no street level geocode). **6** Locality and street level geocodes (no parcel level geocodes). **7** Locality, street and parcel level geocodes.
AUS_GNAF_PARCEL_ID	The Parcel ID field is the generic parcel id field provided by custodial data, and represents a Lot on Plan description that is useful for government agencies. The exact format varies. G-NAF source data has over 7 million records with a Parcel_ID. The Australia geocoder supplements this to populate over 12,730,000 G-NAF records with a Parcel_ID field.
AUS.GNAF_PID	The G-NAF Persistent Identifier (G-NAF PID) is a 14-character alphanumeric string that uniquely identifies each G-NAF address. The PID is constructed from a combination of the major address fields of the G-NAF database. An example of a G-NAF PID is: GAACT718519668

columnName	Description
AUS.GNAF_RELIABILITY	A number indicating the geocode precision. Reliability is related to the dictionary used to determine the geocode. Data with geocoded reliability levels 1, 2, and 3 is contained in the GNAF123 Dictionary. This is point (parcel) level geocoded data. Data with geocoded reliability levels 4, 5, and 6 is contained in the GNAF456 Dictionary. This contains non-parcel centroid geocoded data.

1 Geocode accuracy recorded to appropriate surveying standard. For example, this could apply to an address level geocode that was manually geocoded. Geocode resolution is sufficient to place the centroid within address site boundary with a GPS.

2 Geocode accuracy sufficient to place centroid within address site boundary. For example, this could apply to an address level geocode that was automatically calculated as the centroid of the corresponding cadastre parcel.

3 Geocode accuracy sufficient to place centroid near (or possibly within) address site boundary. For example, this could apply to an address level geocode that was automatically calculated by calculating where on the road the address was likely to appear based upon other bounding geocoded addresses.

4 Geocode accuracy sufficient to associate address site with a unique road feature. For example, this could apply to a street level geocode that was automatically calculated by using the road centerline reference data.

5 Geocode resolution sufficient to associate address site with a unique locality or neighborhood. For example, this could apply to a locality level geocode that was automatically calculated as the centroid of the locality.

6 Geocode resolution sufficient to associate address site with a unique region. For example, this could apply to a locality level geocode that was derived from topographic feature.

columnName	Description
AUS.GNAF_SA1	The Statistical Area Level 1 (SA1) field as the second smallest geographic area defined in the Australian Statistical Geography Standard (ASGS). Mesh Block is the smallest unit. The SA1 is designed for use in the Census of Population and Housing as the smallest unit for the processing and release of Census data. An SA1 is represented by a unique seven digit code.

columnName	Description
AUS.LEVEL_NUMBER	The number of a floor or level in a multistory building. For example,
	Floor 2, 17 Jones Street
	The G-NAF database includes level information for some Australian 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, that information is returned 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.
AUS.LEVEL_TYPE	The label used for a floor of a multistory building. For example, "Level" or "Floor". In this example, the level type is "Level":
	Suite 3 **Level 7**, 17 Jones Street
	In this example, Suite 3 is a unit.
	The G-NAF database includes level information for some Australian 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, that information is returned 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.

columnName	Description
AUS.MESH_BLOCK_ID	A Meshblock is the smallest geographic unit for which statistical data is collected by the Australian Bureau of Statistics (ABS). Meshblocks usually contain a minimum of 20 to 50 households. This is about one fifth the size of a Collection District (CD). You can use the Meshblock ID to do additional attributions against your own data.
AUS.LOT_NUMBER	Lot numbers are returned for G-NAF candidates because some rural addresses do not have adequate physical or house number information.
AUS.STREET_TYPE_ABB	This is an abbreviation for the street type. For example, EX is an abbreviation for Extension and FTRL is an abbreviation for Firetrail.

Notices

USPS® Notices

Data Provider and Related Notices

The Geocode Address World data set contains data licensed from the GeoNames Project (**www.geonames.org**) provided under the Creative Commons Attribution License ("Attribution License") located at **http://creativecommons.org/licenses/by/3.0/legalcode**. Your use of the GeoNames data (described in the Spectrum Technology Platform User Manual) is governed by the terms of the Attribution License, and any conflict between your agreement with Precisely and the Attribution License will be resolved in favor of the Attribution License solely as it relates to your use of the GeoNames data.

precisely

2 Blue Hill Plaza, #1563
Pearl River, NY 10965
USA

www.precisely.com