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# GeoPinpoint Suite Glossary



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## **Glossary**

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### **A**

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#### **About Menu**

Contains trademark information on GeoPinPoint Suite and corporate information about DMTI Spatial.

#### **Address Geocoder**

Takes the input as address information and looks up its geographic location in the form of longitude and latitude from the address point source database, or street segment source database in the geo-reference database (Georef).

#### **Address Point Data Model**

A data model based on address point data information. Using address point data, each address is represented by a sourced graphic point. This procedure will geocode to the corresponding point directly rather than interpolating the point's location.

#### **Application**

Refers to off the shelf or custom program you are using which allows you to access geographic information to enable business decisions or analysis.

#### **Attribute**

Description relating to an item on a map. An example of an attribute would be street names or street types.

## **B**

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### **Block-Face**

Refers to one side of a city street, normally between consecutive intersections with streets or other physical features (such as creeks or railways).

### **Building numbers**

These pieces of information are recognized and removed by GeoPinpoint Suite.

## C

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### **CAMB**

Canadian Atlas Map Bundle. A product from DMTI Spatial with high cartographic quality. Suited for regional, provincial or national analysis, geocoding and presentation purposes.

### **CanMap®**

From DMTI Spatial, is the world's number one choice for Canadian street map data. CanMap enables the user to carry out a range of sophisticated business geographic applications that require positional accuracy, detail, nationwide coverage, and presentation quality cartographics. Available in NAD83 format. Unprojected latitude, longitude. Maintenance subscription program available.

### **Census Agglomeration (CA)**

The Census Metropolitan Area, as well as the Census Agglomeration is a very large urban area (urban core) together with adjacent urban and rural areas that have a high degree of social and economic integration with the urban core. A CMA has an urban core population of at least 100,000 based on the previous census. A CA has an urban core population of at least 10,000 based on the previous census. The CA may be comprised of one or more CSD. 50% of the employed labour force live in the CSD and at least 25% of the employed labour force work in the CSD. A CMA may be consolidated with adjacent census agglomerations if they are socially and economically integrated, forming an area known as a consolidated CMA.

### **Census Division (CD)**

Census Division is the term applied to areas established by provincial law which are intermediate geographic areas between the municipality (Census Subdivision) and the province level. Census Divisions represent counties, regional districts, regional municipalities and other types of provincially legislated areas.

### **Census Metropolitan Area (CMA)**

The Census Metropolitan Area, as well as the Census Agglomeration is a very large urban area (urban core) together with adjacent urban and rural areas that have a high degree of social and economic integration with the urban core. A CMA has an urban core population of at least 100,000 based on the previous census. A CA has an urban core population of at least 10,000 based on the previous census. The CA may be comprised of one or more CSD. 50% of the employed labour force live in the CSD and at least 25% of the employed labour force work in the CSD. A CMA may be consolidated with adjacent census agglomerations if they are socially and economically integrated, forming an area known as a consolidated CMA.

### **Census Subdivision (CSD)**

Applies to municipalities as determined by provincial legislation or their equivalent (i.e. Indian reserve).

## Census Tract (CT)

Small geographic units representing urban or rural neighbourhood-like communities created in CMAs and CAs. They are homogeneous in economic status and social living conditions with a population between 2,500 and 8,000.

## Centroid

The geographic centre of any polygon.

## Closest Address tolerance

If this option is selected, GeoPinpoint Suite will attempt to geocode addresses from the target database table that do not geocode to the address number in the table. In place of the original address number, GeoPinpoint Suite will attempt to geocode addresses to the closest address number within the user-defined tolerance.

The user is required to specify a tolerance value that will be used to define a range above and below the original address number in that record. For example, if the original address that did not geocode was 500 Yonge St, and the user specified a closest address tolerance of 100, then GeoPinpoint Suite would geocode that record to the closest address number that it could find between 400 and 600 Yonge St. If GeoPinpoint Suite cannot find another address number within the closest address tolerance, then the record will remain ungeocoded. If the option is selected, but no tolerance is defined, GeoPinpoint Suite will not perform this function.

**Note:** *If GeoPinpoint Suite locates two address numbers, one above and one below the original address number, that have the same absolute difference from the original address number, then GeoPinpoint Suite will geocode to the higher of the two. From the example above, if GeoPinpoint Suite located two closest addresses in the geo-reference database, 450 Yonge St and 550 Yonge St, both having an absolute difference of 50 from the original address of 500 Yonge St, then GeoPinpoint Suite would geocode the record to 550 Yonge St.*

## Cluster

A term used in geodemography which uses the principle of like attract like. In other words people with similar cultural backgrounds, outlooks and means tend to "cluster" or group together. Most important of all they tend to share consumer behaviour

## Constant for Province

When the target database table contains records for only one province, the two-letter abbreviation for that province may be entered here. The accepted abbreviations for Canadian provinces and territories are listed in Table 3.

This feature is particularly useful if there is no provincial field in the target database table and it contains records that are all in the same province. This option still can be used however, even if there is a provincial field. If this is the case and a provincial field was also identified in the headings on the left side of the dialog, that field will be ignored in lieu of the data entered here.

**Note:** *GeoPinpoint Suite currently handles only Canadian data.*

## **Coordinate Systems**

All geo-referenced data used are in Latitude/Longitude decimal degrees.

## **Currency**

Measures how recently the geographic data was collected.

## D

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### **Data Providers**

Companies that gather digital map data from a variety of public or private sources and adapt and enhance it for a use within GIS application software for sales and marketing analysis of customers or prospects.

### **Data Sources Tab**

This tab allows the user to specify the appropriate geo-reference database, target database, and target database table for geocoding. A SQL query may be typed into the Table/SQL window if specific records in the table require geocoding. Using the Data Sources tab, the user directs GeoPinpoint Suite where to find the geo-reference database, the target database, and which table (or which records within that table) in the target database to geocode.

### **Datum**

A mathematical model that provides a smooth approximation of the earth's surface. See NAD.

### **Dissemination Areas (DA)**

The Dissemination Areas cartographic boundary contains the boundaries of dissemination areas for the 2001 Census. A dissemination area (DA) is a small area composed of one or more neighbouring blocks. DAs cover all of Canada and replace Enumeration Areas (EAs) as the smallest standard geographic areas for which all census data are disseminated.

## E

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### **Enhanced Point of Interest (EPOI)**

The Enhanced Points of Interest (EPOI) V1.4 file is a national database of nearly 1 million Canadian business and recreational points of interest. Engineered using CanMap® Streetfiles, each EPOI has been accurately geocoded and precisely placed; two criteria that are fundamental to any successful location sensitive service.

This location enriched point of interest database allows users to see and analyse selected point of interest data in a given geographic area, enabling applications such as wireless location-based services (LBS), Web, Telematics, planning, real estate multiple listing services (MLS), retail site analysis, competitive and market research, intelligent routing, sales territory analysis, business and tourism.

### **Enhanced Postal Code File**

The Enhanced Postal Code File V6.3 is a point database representation of postal codes across Canada, with a geographic link to Statistic Canada's standard 1996 Census Boundaries.

As in the Six Digit Postal Code file, the Enhanced Postal Code File provides superior geographic positioning based on CanMap, enabling users to accurately geocode and map the location and distribution of their data for spatial analysis.

The Enhanced Postal Code File provides you with added features to enable you to carry out geo-demographic analysis, by linking each postal code to the 1996 Census Demographic Boundaries.

- Nationwide postal code file
- Postal code and delivery mode type
- Community name
- Postal Code with Province abbreviation code attribution (alpha/numeric)
- Longitude and latitude of each point
- Single link indicator (identifies dominant postal code where multiples exist in the Multiple Enhanced Postal Code file)
- Census Subdivision (CSD) type and name
- Links to 1996 Census boundaries; EA, CD, CSD, CMA/CA, CT, FED (1996 and 1987 Representation Order)
- 1996 Census population and dwelling counts
- Identifies an Economic Region and Designated Place within a Province
- Birth date and retire date of the postal code



The Enhanced Postal Code File is available in 2 versions:

- Unique Enhanced Postal Code File (UEP)
- Multiple Enhanced Postal Code File (MEP)

Before purchasing postal code information, it is important to consider how the data will be used. This in turn will help you determine which of the postal code files will be the most appropriate for your application.

As in the Six Digit Postal Code file, the Enhanced Postal Code File provides superior geographic positioning based on CanMap, enabling users to accurately geocode and map the location and distribution of their data for spatial analysis

### **Enumeration Area (EA)**

Refers to the geographic area canvassed by one census representative. It is the smallest geographic area for which census data is reported. An Enumeration Area may contain approximately 125 to 440 dwellings depending on whether it is located in a rural or urban area respectively.

## F

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### **Fallback**

This function was found in GeoPinpoint v3.4. The “fallback” function has been migrated to the Defining Geocoding Path dialog under the Other category or Postal Code/Segment Range Geocoder.

GeoPinpoint Suite will optionally “fallback” to less precise means of geocoding if address matching fails.

For more information on the geocoding sequence, see Appendix 7 (Windows user manual)

### **Fallback to Centroid of Postal Code**

This function was found in GeoPinpoint v3.4. This “fallback” function has been migrated to the Defining Geocoding Path dialog under the Postal Code/Segment Range Geocoder.

Enabling this option allows GeoPinpoint Suite to attempt to geocode to the postal code if all other previous matching attempts have failed.

### **Fallback to Centroid of FSA**

This function was found in GeoPinpoint v3.4. The “fallback” function has been migrated to the Defining Geocoding Path dialog under the Other category.

Enabling this option allows GeoPinpoint Suite to attempt to geocode to the FSA centroid if all other previous matching attempts have failed.

### **Fallback to Centroid of Populated Place Names**

This function was found in GeoPinpoint v3.4. The “fallback” function has been migrated to the Defining Geocoding Path dialog under the Other category.

Enabling this option allows GeoPinpoint Suite to attempt to geocode to a populated place name if all other previous matching attempts have failed.

### **Fallback to Centroid of Municipality**

This function was found in GeoPinpoint v3.4. The “fallback” function has been migrated to the Defining Geocoding Path dialog under the Other category.

Enabling this option allows GeoPinpoint Suite to attempt to geocode to the municipal centroid if all other previous matching attempts have failed.

### **Federal Electoral Districts (FED)**

A Federal Electoral District refers to any place or territorial area entitled to elect a representative member to serve in the House of Commons. There are 295 FED's in Canada according to the 1987 Representation Order (1996 Census) and 301 FED's in the 1996 Representation Order (2001 Census).

## File Menu

There are 5 options available to the user in the *File* menu:

- Generate License File:  
This option allows the user to enter the purchase and/or evaluation keys that they receive from Sales. It is also accessed when upgrading from an evaluation key to a purchase key.
- Define Geocoding Path:  
This option allows the user to open up the tree format now found in the GeoPinpoint Suite and select their own personalized geocoding path.
- Save Settings:  
This option allows the user to save all of their currently selected geocoding options to a configuration (.cfg) file. This is beneficial for users who geocode multiple tables and wish to use the same geocoding options for another geocoding session. In order for this utility to work, the user must have all of the fields entered on the *Data Sources* tab.
- Load Settings From File:  
If a user has saved the settings of a previous geocoding session to a configuration file, then this option allows the user load those previously saved geocoding options.
- Exit:  
This option allows the user to exit the GeoPinpoint Suite.

## Floor Numbers

These pieces of information are recognized and removed by GeoPinpoint Suite.

## Forward Sortation Area Centroid

DMTI Spatial's FSA boundaries include multi-polygon regions where appropriate (i.e. two or more polygons which form one region or entity in the database), reflecting the complexity inherent in FSA geography. Each of these regions will have a centroid coordinate associated with it.

## FSA

Forward Sortation Area is the first three characters of the Canadian Postal Code.

DMTI Spatial's FSA boundaries include multi-polygon regions where appropriate (i.e. two or more polygons which form one region or entity in the database), reflecting the complexity inherent in FSA geography.

Benefits:

DMTI Spatial's FSA boundaries can help you carry out the following strategic applications:

- Define sales territories
- Establish targeting for direct marketing campaigns
- Gather accurate research for location analysis
- Analyze sales leads and customer lists

## **FSA Centroid**

See Definition of Forward Sortation Area Centroid.

## **FSA LDU**

Refers to the Canadian six digit postal code. FSA (Forward Sortation Area) represents the first three digits of a postal code and LDU (Local Delivery Unit) represents the last three digits of a postal code.

## G

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### Generate Summary Report

This tool generates a summary report of result codes and precision codes for a geocoding session. The report is saved as a text file with a .rept extension. In the *Generate Summary Report* sub-menu, the user is provided with the option to select *Yes* or *No* as the default value for this function. If the user selects *Yes*, upon completion of a geocoding session, GeoPinpoint Suite will prompt the user for where to save the summary report. If the user selects *No*, no summary report will be generated. However, if the default value was set to *No*, but the user wishes to generate a summary report, the user can do this for the most recent geocoding session by selecting *Generate Summary Report* in the sub-menu.

### Geocode

To provide geographic coordinates for an address so that it can accurately be placed on a map. See GeoPinpoint Suite.

### Geocoding

Geocoding or “geo enabling” is a powerful GIS tool which attaches geographic coordinates to database records enabling you to pinpoint your data and carry out geo-spatial analysis.

### Geocoding by Address

Data that are geocoded by address will require an exact match on the street number and street name. The street type, street direction, and street prefix may be relaxed using options available on the *Relax* tab in the *Input Specifications* section of the dialog.

Relaxing the street type requires that the address match on the street number, street name and municipality, but that another street type may be substituted in place of the street type found in the file. In some instances, this can be an effective way of geocoding data with missing street types.

Street direction may also be relaxed during the geocoding process. In this case, the street number, street name, street type (if not relaxed) and municipality must match before an alternative street direction is chosen. Since street direction is a very specific component of an address, caution should be exercised when using this option. It is a useful option when street directions are missing from a database. When using these options (*Relax Matching on Street Type*, *Relax Matching on Street Direction*, or *Relax Matching on Street Prefix*), it is recommended that the *Refine Address by Postal Code* option be also used.

Relaxing the street prefix requires that the address match on the street number and municipality, but that another street prefix may be substitute during geocoding process.

The relaxation of street type, street direction, and street prefix will require that the address be matched on street number, street name, and municipality.

To geocode by intersection, records will be located in an unparsed address field and will list one street name, street type, street direction followed by a space, double ampersand, space, and then the second street name, street type and street direction (Please note that the order in which the street name, street type, and street direction occur on each side of the delimiter depends on the language being used). An example is found below.

Yonge St && Bloor St W

The *Use Intersection Delimiter* option on the *General* tab in the *Input Specifications* section of the dialog, allows the user to enter a custom delimiter for intersection data to replace the default double ampersand (&&). It should be noted that only one intersection delimiter can be used at a time, and if a custom delimiter is entered, then the default, “&&”, is not used. The delimiter is used by GeoPinpoint Suite to recognize intersection data. It is important, therefore, that the delimiter is a unique symbol, or combination of symbols, that does not appear as part of any records containing regular address data.

## Geocoding by FSA Boundary

Using these functions requires that each address be geocoded within the proper FSA (forward sortation area). A FSA is the first three digits of a postal code (e.g. N0N). GeoPinpoint Suite derives the FSA for the address from the data in the field labeled *Postal Code*. If this option is selected, a field must be entered in the *Postal Code* drop down list.

This option is useful if the target database table does not have a municipal field but does have postal code data, or if the data in the municipal field is not consistent with Statistics Canada CSD names. Furthermore, if a Statistics Canada CSD boundary is larger than a FSA boundary, this option may provide greater refining than the municipal boundary option.

When this option is used in combination with Geocoding by Municipal Boundaries functions, GeoPinpoint Suite will first attempt to geocode within the Municipal Boundary. If that geocoding attempt fails, it will then attempt to geocode within the FSA boundary. If a match is successful within the Municipal boundary, the FSA boundary will not be considered.

If the user selects a "... *by Municipality* ..." function from the Define Geocoding Path dialog, it will allow GeoPinpoint Suite to contain the resulting geocoded point to the segment with the lowest address within the municipality indicated in that record. If the user selects a "... *by FSA* ..." function from the Define Geocoding Path dialog, it will allow GeoPinpoint Suite to contain the resulting geocoded point to the segment with the lowest address within the geographic area covered by the FSA indicated in that record.

**Note:** Geocoding functions utilizing FSA data are useful for a variety of reasons:

- Sometimes the postal code will not yield the correct Municipality, but geocoding to FSA will allow you to find the correct Municipality.
- Sometimes an FSA encompasses 2 or more Municipalities (i.e.: in some rural areas) therefore allowing the user to find a street which may pass between these two places.

## Geocoding by Intersection

To geocode by intersection, records will be located in an unparsed address field and will list one street name, street type, street direction followed by a space, double ampersand, space, and then the second street name, street type and street direction (Please note that the order in which the street name, street type, and street direction occur on each side of the delimiter depends on the language being used). An example is found below.

Yonge St && Bloor St W

The *Use Intersection Delimiter* option on the *General* tab in the *Input Specifications* section of the dialog, allows the user to enter a custom delimiter for intersection data to replace the default double ampersand (&&). It should be noted that only one intersection delimiter can be used at a time, and if a custom delimiter is entered, then the default, “&&”, is not used. The delimiter is used by GeoPinpoint Suite to recognize intersection data. It is important, therefore, that the delimiter is a unique symbol, or combination of symbols, that does not appear as part of any records containing regular address data.

## Geocoding by Municipal Boundary

Using these functions ensures that each address is geocoded within the proper municipality. This is particularly useful when geocoding a data set with multiple cities that have some of the same street names. For example, a table may contain data for the cities of Toronto and Whitby, Ontario, both of which have streets named King Street.

If this option is selected, there must be municipal data accessible to GeoPinpoint Suite. This can be accomplished using one of two methods; either a field may be entered in the *Municipality* drop down list, or if a field is entered for the *Postal Code* drop down list, by using the *Lookup Municipality via Postal Code* option (See *General Geocoding Options*).

If the user selects the *Postal Code Geocoder | Use Address | To Street Segments* (formally the *Lowest Address* function), GeoPinpoint Suite will attempt to geocode addresses from the target database table that do not contain a street number, or where a match cannot be made between the provided address number and the geo-reference database.

When using this function, GeoPinpoint Suite will first locate all street segments with a matching street name. Of these segments, GeoPinpoint Suite will select the segment that has the lowest address number.

If the user selects a "*by Municipality*" function from the *Define Geocoding Path* dialog, it will allow GeoPinpoint Suite to contain the resulting geocoded point to the segment with the lowest address within the municipality indicated in that record. If the user selects a "*by FSA*" function from the *Define Geocoding Path* dialog, it will allow GeoPinpoint Suite to contain the resulting geocoded point to the segment with the lowest address within the geographic area covered by the FSA indicated in that record.

## Geocoding by Municipality

Municipality centroids will be used if the option in the *Input Specifications* dialog is selected, and the postal code option is not. The centroids are located based on shorelined CSD boundaries.

A municipality alias table will attempt to match uncommon municipality names in the target database table to those recognized by the geocoder. For example, Downsview is a commonly used name to describe a geography within Metropolitan Toronto. The actual CSD name, however, is North York. If municipality names are suspect or missing in the user's target database table, the municipality may be looked up using the postal code for the record. Use of the municipality alias table or postal code look up does not however result in an updated municipality column in the target database table.

## Geocoding by POI

See definition for Geocoding by Point of Interest.

## Geocoding by Point of Interest

This option allows the user to enter points of interest names in the address field rather than an actual address, and geocode to DMTI Spatial's Points of Interest layers. If geocoding to points of interest is desired, then the *Use Un-Parsed Address Field* option must be selected, and the names of the points of interest must be entered in the address field of the target database table.

GeoPinpoint Suite is able to geocode unparsed addresses and points of interest (and also intersection data) at the same time, as long as the same specified address field is used to store all the data. Parsed address data cannot be processed at the same time as points of interest (or intersection) data.

New functions are available in the *Define Geocoding Path* dialog:

- Use Whole Name
- Use Whole Alias
- Use Partial Name
- Use Partial Alias
- Use POI Code

For example for the function Use Whole Name: Successful geocoding to points of interest will only be achieved if the name that is entered in the address field is an exact match to the name in DMTI Spatial's Points of Interest Layer. For more information on these functions, please see the GeoPinpoint Suite Windows manual (i.e.: Define Geocoding Path section). As far as possible, the Points of Interest layers contain the official name for a point. For example, "The Hospital For Sick Children" is the official name of a hospital in Toronto. Although it is often referred to as "Sick Kids Hospital", it will not be successfully geocoded if that name is entered. For a more detailed explanation of the Points of Interest layers that are available for geocoding, see Appendix 4.

If an attempt to geocode to a point of interest is unsuccessful, the first line of action should be to double check that the name of the point of interest in the target database table is complete and accurately spelled.

GeoPinpoint Suite currently has the capability to geocode to the Points of Interest (POI) layers produced by DMTI Spatial, if the appropriate option is selected in the GeoPinpoint Suite dialog prior to commencing the geocoding operation. These layers and their descriptions are outlined in Table 4.

There are several points of interest layers that DMTI Spatial maintains that are not included in the GeoPinpoint Suite geo-reference database and as such, are not available for geocoding. The reason for these exclusions lies in the lack of standardized naming for these points.

In addition to the listed POI layers, you can also geocode to a variation of DMTI Spatial's Aerodrome (AER) file that contains airports, waterdromes, heliports and airfields. Due to the names that appear in the standard naming field, DMTI Spatial has enhanced the Aerodrome file to be utilized by GeoPinpoint Suite, by adding in aliases and four digit airport codes (where source data was available). For instance, when attempting to geocode to aerodromes identified in Table 5, the user may enter the data seen under Name 1, Name 2 or Name 3.



## Geocoding by Postal Code

Postal codes will be used to geocode records when geocoding by address has failed and if the option is activated in the *Input Specifications* section of the dialog. GeoPinpoint Suite accepts both 6 and 7 digit postal codes for geocoding (i.e. Postal codes with a space, such as NON 1H0, or without a space, such as NON1H0).

## Geocoding to Street Alias

This option (Input Specifications tab) allows GeoPinpoint Suite to search the geo-reference database for alternative street names for streets that have more than one correct identifying name. For example, a road may be known as Broadway Avenue, and Highway 9. While the name Broadway Avenue may be in the geo-reference database street field, the target database table may have a record with the address on Highway 9. By selecting this option, GeoPinpoint Suite is able to make a match by finding Highway 9 in the geo-reference database Street Alias field.

**Note:** *The Geocode to Street Alias option now includes the previously separate option Geocode to Former Street Name. When GeoPinpoint Suite now searches the Street Alias field in the geo-reference database, it will also search the Former Street Name field. (Former street names are only relevant to Ontario, since many Ontario roads have changed name in recent years as a result of infrastructure reallocation. E.g. Highway 7 in the G.T.A. is now Regional Rd 7.)*

## Geocode Tab

The geocoding process is started here. The geocoding results are updated in the Result's window as the table is being geocoded.

## Geocoding Path

This is determined via user selection. The Geocoding Path consists of the tree elements which are selected from the Defining Geocoding Path dialog. It also contains the selections made on the Input Specifications tab of the GeoPinpoint Suite.

## Geocoding Sequence

The following list is a summary of the sequence of events.

After pressing the *Start* button, GeoPinpoint Suite will first evaluate the geocoding targets selected on the Geocoding Path tree. If any of them are selected, the target database table will be geocoded using these methods. If none of these are selected, the default path will be used which currently is set to geocode to address point(s) based on the segment data model using municipal boundaries.

### **These are the geocoding sequence steps for GeoPinpoint Suite v4.x:**

The geocoding sequence is determined by the priority in the geocoding path tree. For currently implemented geocoding targets, if all of the targets are selected, its order will be in the following list and if some targets are not selected, these steps will be simply skipped.

1. Geocoding to Address point based on street segment data model using municipality boundary;
2. Geocoding to Address point based on street segment data model using FSA boundary;

Items a through e (i, ii) provide a detailed explanation of how the address geocoder is structured (see Steps 1, 2 above):

- a. If geocoding at intersection is requested, check for intersection data (look for user defined delimiter) and if found, geocode by intersection; otherwise,
  - b. Attempt to geocode to address by matching street number, street name, street type, street direction and municipality information (if municipality information is not found, lookup municipality via postal code if this option is selected); and if this operation fails,
  - c. Attempt to geocode using street alias (includes street former name) if this option is selected; and if this operation fails,
  - d. When geocoding to address - relax first on street type, then on street direction, then on street prefix if these options are selected. If at this stage a match has been found:
    - i) Attempt to geocode the address to the correct municipality if this option is selected; and if this operation fails,
    - ii) Attempt to geocode the address to the correct FSA boundary if this option is selected; and if this operation fails,
  - e. When geocoding using street alias - relax first on street type, then on street direction, then on street prefix if these options are selected. If at this stage a match has been found:
    - i) Attempt to geocode the address to the correct municipality if this option is selected; and if this operation fails,
    - ii) Attempt to geocode the address to the correct FSA boundary if this option is selected; and if this operation fails,
  - f. Attempt to geocode to closest address (within user defined tolerance) if this option is selected; and if this operation fails,
3. Geocoding to POI point by matching to whole POI name using municipality boundary;
  4. Geocoding to POI point by matching to whole POI name using FSA boundary;
  5. Geocoding to POI point by matching to whole POI Alias name using municipality boundary;
  6. Geocoding to POI point by matching to whole POI Alias name using FSA boundary;
  7. Geocoding to POI point by matching to partial POI name using municipality boundary;
  8. Geocoding to POI point by matching to partial POI name using FSA boundary;
  9. Geocoding to POI point by matching to partial POI Alias name using municipality boundary;
  10. Geocoding to POI point by matching to partial POI Alias name using FSA boundary;
  11. Geocoding to POI point by matching to POI code using municipality boundary;
  12. Geocoding to POI point by matching to POI code using FSA boundary;
  13. Geocoding to Postal code point using Postal code;
  14. Geocoding to street segment centroid using input address by municipal boundary;
  15. Geocoding to street segment centroid using input address by FSA boundary;
  16. Geocoding to street segments using input address by municipal boundary;

17. Geocoding to street segments using input address by FSA boundary;
18. Geocoding to PPN point using municipality as input;
19. Geocoding to municipal centroid using municipality as input;
20. Geocoding to FSA centroid using FSA as input;
21. Refine address to postal code if this option is selected.

**Note:** POI Code refers to POI Type listed in the CanMap product.

Example: Lester B Pearson International Airport has the POI Code CYYZ (See *Appendix 4*)

## Geographic Information Systems

Geographic Information System, a computer-based technology for retrieving, storing, and organizing data based on its location on a map.

## GeoPinpoint Suite

GeoPinpoint Suite, attaches geographic coordinates to records in a database by means of matching certain fields in the database against existing geo-reference databases. GeoPinpoint Suite uses a system of address parsing and standardization techniques to cleanse the input data, thereby improving address-matching rates. Both English and French style Canadian addressing are effectively handled by the GeoPinpoint Suite address-parsing feature.

DMTI Spatial's geocoder, GeoPinpoint Suite, is able to attach geographic coordinates to records in a database by means of matching the data in certain fields in the database against existing geo-reference databases. These geo-reference databases, which are made up of digital street geometry, address ranges, postal coordinates, and other point-location coordinates, are updated regularly by DMTI Spatial to ensure the greatest possible accuracy. After the data are geocoded, they may be transferred into a geographic information system such as AutoCad Map, MapInfo, ArcInfo, ArcView or other system that supports spatial data.

GeoPinpoint Suite is able to geocode address data, intersection data, and points of interest data as long as these data are stored in an Oracle or Access database. GeoPinpoint Suite offers a great deal of flexibility in data entry because it handles French-style addressing as efficiently as English-style addressing and it is able to geocode unparsed or parsed addresses. In addition, GeoPinpoint Suite gives the user many options to improve geocoding accuracy, such as the option to refine by postal code, and to obtain higher matching rates, such as the ability to "relax" on street type, street direction, or street prefix.

## Georef

See definition for Geo-reference Database.

## Geo-reference Database

Geo-reference databases are made up of digital street geometry, address ranges, postal coordinates, and other point-location coordinates. The geo-reference database contains the geographic coordinates supplied by DMTI Spatial that will be used during geocoding.

## **GIS**

See definition for Geographic Information System.

## **GPS**

Global Positioning System, satellite-based positioning technology that, with differential correction, can yield engineering-level accuracy.

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**I**

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## Input Specifications Tab

The user may move to the *Input Specifications* tab (Figure 2) by clicking the *Next* button or selecting the *Input Specifications* tab at the bottom of the GeoPinpoint Suite dialog. The *Input Specifications* section allows the user to specify what fields are to be used while geocoding, and also what geocoding options are going to be used.

The headings listed along the left side of the *Input Specifications* tab represent fields in the geo-reference database. The user must match the headings to the appropriate field names from the target database table using the drop down lists. The drop down lists are populated with names from the target database table of fields that contain the appropriate data type, so the user does not have to remember the proper field names and spellings. If the desired field for one of these is not listed, the user is encouraged to verify that the type of data contained in the target database table is appropriate for the type of data required.

## Interactive Geocoding

This tab allows the user to specify the fields in the table that will be used for the geocoding process. Tables may be geocoded using different combinations of the address field, postal code field, and place name field. This tab also allows the user to select the specific geocoding options that are desired.

This option offers an alternative to the usual batch processing of GeoPinpoint Suite, in which all records in the target database table are geocoded as far as possible, and any records that cannot be matched are simply marked as failed in the result code. When the interactive geocoding option is selected, GeoPinpoint Suite will pause at each record that it is unable to geocode using with the defined parameters and will offer the user three choices to continue with geocoding:

1. To make changes to the address and retry geocoding that record
2. To skip that record
3. To exit the interactive mode and finish geocoding the table in batch mode.

### Notes:

- *If a change is made to an address during an interactive geocoding session, the change will be reflected in the original target database table. These are permanent changes that remain after the geocoding process is complete.*

## Interpolation Code (Precision Code)

An interpolation code is an indicator for address point status that describes whether or not an address was geocoded to a point that exists in the geo-reference database or an interpolated address. GeoPinpoint Suite will return interpolation codes of 0, 20 or 21. Value 0 indicates that the address point is interpolated and its existence in the real world is not guaranteed; value 20 indicates that the address point is the start or end point of a original street segment, and it most likely exists in the real world; and value 21 indicates the address point is both the starting and the end point of the corresponding street segment (i.e. there is only one address point on the street segment), and the location of this point has been relocated to the centre of the segment. This address point also most likely exists in the real world.

## Intersection Delimiter

If geocoding by intersection is desired in addition to address level geocoding, this option should be selected. If the window that is adjacent to the *Use Intersection Delimiter* heading is left blank, the default delimiter of “&&” is used. For example, GeoPinpoint Suite will interpret a record with the entry Yonge St && Bloor St W as being the intersection of Yonge St and Bloor St W. Alternatively, a custom delimiter of not more than 2 digits can be entered in the window.

If intersection geocoding is desired, the *Use Un-Parsed Address Field* option on the *General Geocoding Options* tab must be selected. GeoPinpoint Suite is able to geocode unparsed addresses and intersection data (and points of interest) at the same time, as long as the same specified address field is used to store all the data. Parsed address data cannot be processed at the same time as intersection data (nor can points of interest).

Since GeoPinpoint Suite recognizes intersection data by the delimiter, it is important to use a symbol that does not appear as part of any of the addresses.

## L

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### Large Volume Receivers (LVR)

Any postal codes that begin with LVR have been assigned this special postal code by Canada Post as the volume of mail being received is equal or greater than 200 mail pieces per day. A building or even a unit within a building may receive this special postal code as a result of their volumes.

### Latitude

The first component of a spherical coordinate system used to record positions on the earth's surface. Latitude indicates the angular distance north or south of the earth's equator measured through 90 degrees. See Longitude. This number will always be a negative number for Canadian data as Canada is in the west of the prime meridian.

### Layers

A means of organizing and managing map data by type. Hydrological features (such as floodplains), parcel maps, railroads, and so on can be contained on separate layers for easy map creation and maintenance.

### LDU

FSA LDU refers to the Canadian six digit postal code. FSA represents the first three digits of a postal code and LDU represents the last three digits of a postal code. LDU stands for Local Delivery Unit.

### Linear Referencing

The linear referencing (LR) function for GeoPinpoint Suite allows the user to identify a single event at a geographic location between 2 intersections. Point event information includes the following:

- The distance (m) to the address point from the end of the segment (**FromDistance**)
- The distance (m) to the address point from the beginning of the segment (**ToDistance**)
- The nearest street from the start of the segment (**IntersectedStartStreet**)
- The nearest street from the end of the segment (**IntersectedEndStreet**)

#### Example Input address record - 2 intersection output

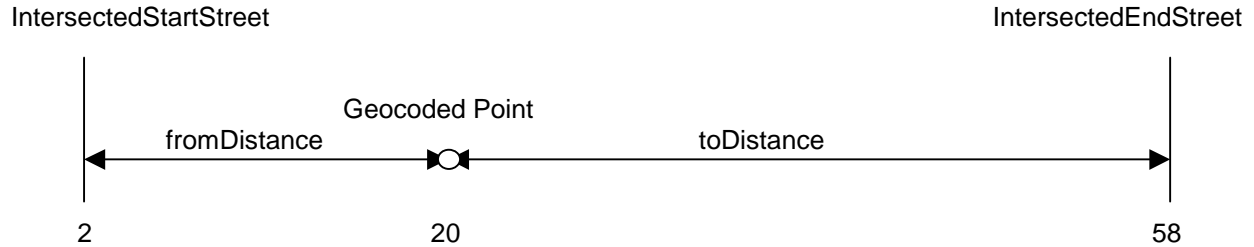
20 BAY ST, TORONTO, ON

fromDistance : 69.859808959243  
toDistance : 48.364483125721  
IntersectedStartStreet : QUEENS QUAY W  
IntersectedEndStreet : HARBOUR ST

### Example Input address record - 1 intersection output

"35 ABBEYDALE VILLA NE","CALGARY","AB","T2A 7P6"

fromDistance : 66.834017036410  
 toDistance : 0.000000000000000  
 IntersectedStartStreet : ABBEYDALE DR NE  
 IntersectedEndStreet :



For situations that occur where a street does not intersect any other streets for a few segments (>3) – the linear referencing function will only search 3 segments in each direction in an attempt to find an intersecting street. Therefore, it is possible that an intersection may not be returned.

### Load Setting From File

If a user has saved the settings of a previous geocoding session to a configuration file, then this option allows the user load those previously saved geocoding options.

### Local Delivery Unit

FSA LDU refers to the Canadian six digit postal code. FSA represents the first three digits of a postal code and LDU represents the last three digits of a postal code.

### Longitude

The second component of a spherical coordinate system used to record east-west positions on the earth's surface, measured in degrees as the arc or position of the earth's equator intersected between the meridian of a given place and the prime meridian, which runs through Greenwich, England. See Latitude. This number will always be a positive number for Canadian data as Canada is in the north of the equator. See Latitude.

**Note:** The coordinates generated by GeoPinpoint Suite are in Latitude/Longitude decimal degrees. The number of decimal places in the output coordinate is determined by the field type specifications in the target database table.



## Lookup Municipality via Postal Code

If an address record in the target database table does not contain a municipality in the field specified in the *Municipality* drop down list, or it contains an incorrect municipality, and this option is selected, GeoPinpoint Suite will determine the municipality name based on the postal code coordinates for that record. This option can also be used if no municipality field is specified, but postal information is included. A municipality will not be assigned to any record that does not contain a postal code. If a municipality field is specified and does contain data, GeoPinpoint Suite will try to find a match using that data first. It will only derive a municipality if this attempt to find a match fails.

The derived municipalities are used for geocoding purposes only. The target database table is never altered.

## Lot Number

These pieces of information are recognized and removed by GeoPinpoint Suite.

## Lowest Address

The Lowest Address function from GeoPinpoint v3.4 has been changed and is now available in the Postal Code Geocoder > Use Address > To Street Segments (i.e.: Geocoding Path)

If the user selects the Postal Code Geocoder | Use Address | To Street Segments (formally the Lowest Address function), GeoPinpoint Suite will attempt to geocode addresses from the target database table that do not contain a street number, or where a match cannot be made between the provided address number and the geo-reference database.

When using this function, GeoPinpoint Suite will first locate all street segments with a matching street name. Of these segments, GeoPinpoint Suite will select the segment that has the lowest address number.

If the user selects a "... by *Municipality* ..." function from the Define Geocoding Path dialog, it will allow GeoPinpoint Suite to contain the resulting geocoded point to the segment with the lowest address within the municipality indicated in that record. If the user selects a "... by *FSA* ..." function from the Define Geocoding Path dialog, it will allow GeoPinpoint Suite to contain the resulting geocoded point to the segment with the lowest address within the geographic area covered by the FSA indicated in that record.

## M

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### **MDB button**

Connect to find a Microsoft Access database to geocode.

### **Multiple Enhanced Postal Code File (MEP)**

The Multiple Enhanced Postal Code File is a database file containing 973,807 (as of V6.3) six digit postal codes in Canada, as well as a link to Statistics Canada's standard census geographic areas. The reason this file is called 'Multiple' is because in some cases it is necessary to represent a postal code in more than one location.

### **Municipal Alias List**

DMTI Spatial has created a list of municipal aliases that allows the user to geocode databases that contain place names that do not have individual Census Subdivision boundaries as defined by Statistics Canada. For example, Cape Breton, NS is a large CSD boundary that has several communities within its boundary. If a user attempted to geocode to Glace Bay, this alias list indicates Glace Bay as an alias for Cape Breton. The record will geocode, and the fifth digit of the result code, representing the municipal data, will be a 6, as indicated in the chart.

### **Municipal Aliases**

This file is a combination of CSD names, formerly used names (Downsview, Etobicoke), and a total of names collected by observation through the extensive data processing undertaken by DMTI Spatial.

### **Municipal Boundaries**

The municipal boundaries are derived from the 1996 Census Subdivision (CSD) boundary files.

### **Municipal Centroid**

The municipal centroids are located based on shorelined CSD boundaries.

### **Municipality**

This heading represents a field that contains the municipality for an address. This field may or may not be present in a target database table. If the municipality is not present in a table, it may be derived using the *Lookup Municipality via Postal code* option (see the *General Geocoding Options* tab), provided that postal codes are included.

## N

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### NAD

North American Datum. Most current is NAD83 which was adopted by the Canadian Federal Government in 1990, and supersedes the North American Datum of 1927 (NAD27). See Datum.

### NTDB

The National Topographic Data Base (NTDB) is a digital database developed by Geomatics Canada and enhanced by DMTI Spatial. The NTDB contains extensive map data classified by approximately 850 feature codes and presented by DMTI Spatial in 15 logical cartographic layers. The NTDB is available from DMTI Spatial in standard GIS plug and play formats.

The NTDB conforms to uniform standards and specifications across the country, and includes the features normally found on a topographic map. NTDB maps are available at 1:50,000 and 1:250,000 scale. Major themes covered by the NTDB include:

- Hydrography
- Transportation networks
- Infrastructures
- Vegetation
- Landforms and relief

## O

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### ODBC button

The Data Source Open Database Connectivity (ODBC) button allows GeoPinpoint Suite to access tables stored within an enterprise database (e.g.: Oracle). Currently, GeoPinpoint Suite only supports Oracle 8i/9i databases at this time. Future enterprise databases (e.g.: SQL Server) will be added in the future.

### Offset from centerline

The offset value specified is the distance in metres that the point will be placed from the centerline street data during geocoding. An offset of 10 m is average for most roadways.

### Opposite Side of the Street Geocoding

The Opposite side of the street geocoding function will attempt to geocode to one value +/- the input address number if an address did not geocode successfully.

Input Address	Geocoded Address
625 Cochrane Dr	624 and 626 Cochrane Dr

### Output Specifications Tab

This tab allows the user to specify the output fields for the coordinates, result code, and precision code data. The options exist to geocode all records or to preserve previously geocoded records, and to use interactive geocoding. On the Output Specifications tab, the user will have the opportunity to direct GeoPinpoint Suite to which fields should be used for which data.

The *Output Specifications* section allows the user to specify what fields are to be used for geocoding data output. The coordinates of the geocoded records as well as two codes that describe the method used to geocode and the level of precision of geocoding are directed to the target database table from this section. The *Output Specifications* tab also allows the user to set some additional processing options outlined below.

The headings listed along the left side of the *Output Specifications* tab represent fields in the target database table. The user must match the headings to the appropriate field names from the target database table using the drop down lists. The drop down lists are populated with names from the target database table of fields that contain the appropriate data type, so the user does not have to remember the proper field names and spellings. If the desired field for one of these is not listed, the user is encouraged to verify that the type of data contained in the target database table is appropriate for the type of data required. The four output fields are longitude, latitude, result code and precision code.

## Overwrite existing coordinates

If a record contains data in the fields specified to receive coordinate data, and this option is selected, that record will be re-geocoded and any data stored in the four specified output fields, for that record, will be overwritten with the new data.

If the target database table has not been geocoded before, then this option can remain unselected. If the database has been geocoded, however, and the geocoding is being redone, then this option can be left unselected to skip the records that have already been geocoded. GeoPinpoint Suite will geocode any records that contain all blanks or zeros in the fields specified to receive longitude and latitude data output. This is particularly advantageous if a table has already been geocoded with a high-level precision geocoding session, and the table is being reprocessed with a lower level precision geocoding session. (This might include such options as by relaxing on street type and direction, to capture more records.) In this case, it would be desirable to maintain the coordinates of the first geocoding session for the records that were successfully geocoded with a high level of precision, rather than risk losing precision by regeocoding them with the relax options selected.

Clicking the *Start* button will commence the geocoding process. While GeoPinpoint Suite is geocoding, any of the three previous tab headings, *Data Sources*, *Input Specifications*, or *Output Specifications*, may be viewed without affecting the session.

Using the *Stop* or *Back* buttons will terminate a current geocoding session, however it can be restarted by clicking the *Start* button again. If the *Overwrite Existing Coordinates* option is not selected, clicking the *Start* button will cause GeoPinpoint Suite to geocode only those records that were not previously geocoded. (GeoPinpoint Suite determines whether or not a record has been previously geocoded by the contents of the fields designated to receive longitude and latitude data.) If the *Overwrite Existing Coordinates* option is selected, pressing the *Start* button will cause GeoPinpoint Suite to return to the beginning of the table and to regeocode the entire table. The user may wish to select the *Overwrite Existing Coordinates* option prior to restarting the geocoding process if a change has been made to any of the previously selected geocoding options. Otherwise, leaving it unselected and skipping previously geocoded records offers the potential to save time.

## P

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### Parsed address

Addresses in a table may be contained all in one field (unparsed), or may be stored as individual components in multiple fields (parsed). An address that is unparsed might have the following components contained in a single field: street number, street name, street type, street direction, and apartment or suite number. Intersection locations (e.g. Yonge St && Bloor St W) are also considered unparsed. An address that is parsed is split into its individual components in multiple fields. These fields might include: street number, street name, street type, street direction, and apartment or suite number. Each of these address components will be contained within its own field in the table.

In both parsed and unparsed data sets, the postal code, municipality, and province data should occupy separate fields in the table.

To demonstrate the field matching options for unparsed addresses, 201-100 Rue Des Laurier will be used as a sample address.

- Unparsed Address:

This heading represents an address field that contains all the relevant street address components. This field may contain a street number, a street prefix (words such as *Des*, *De La*, *De L'*, and *The* that add to, but may not be part of the street name), a street name, a street type, a street direction, and an apartment or a suite number. For example, the street address 201-100 Rue Des Laurier contains an apartment number (201), a street number (100), a street type (Rue), a street prefix (Des), and a street name (Laurier). When a suite or apartment number, a street prefix, or a street direction is not relevant to an address, placeholders do not need to be included. If there are records in the table that include intersection data, they would also occupy an unparsed address field. For example, this field might contain Yonge St && Bloor St W.

**Note:** When geocoding data by POI Name with unparsed data, select POI Name under this field.

- Municipality:

This heading represents a field that contains the municipality for an address. This field may or may not be present in a target database table. If the municipality is not present in a table, it may be derived using the *Lookup Municipality via Postal code* option (see the *General Geocoding Options* tab), provided that postal codes are included.

- Province:

This heading represents a field that contains the province in Canada of the address. If the records within a database fall within one province, the *General Geocoding Options* tab offers an alternate to choosing a field.

- Postal Code:

This heading represents a field that contains the postal code in Canada for the address records. Postal Codes must be entered as either 6-digit or 7-digit strings (i.e. with, "N0N 1H0", or without, "N0N1H0", a space).

To demonstrate the field matching options for parsed addresses, the same example as above, 201-100 Rue Des Laurier, will be used.

- Street Number:

This heading represents a field that contains only the house/building number portion of the total address. The field should contain the number 100 from the sample address. This field must be formatted as a long integer.

- **Street Prefix:**  
This heading represents a field that contains words that add description to the street name, but are not a part of the street name themselves. For example, the words *Des*, *De La*, *De L'*, and *The* often precede the actual street name. In the sample address, *Des* could be located in a separate field in the table to be geocoded. This field is an optional parsed field; the data could alternatively be included as part of the Street Name field.
- **Street Name:**  
This heading represents the field in the target database table for the name of the street. In the sample address the field for street name would contain *Laurier*, or *Des Laurier* if there were no street prefix field.  
**Note:** When geocoding data by POI Name with parsed data, select POI Name under this field.
- **Street Type:**  
This heading is used if the user's database has 1 street type field. It represents the field in the target database table that contains the street type. The street type in the example is *Rue*. For a list of valid street types, see Appendix 5.
- **Street Prefix Type & Street Suffix Type:**  
This heading is used if the user's database has 2 street type fields. To access both drop down lists, the user must select the *Use Street Prefix and Suffix Type* option located on the *General Geocoding Options* tab. This allows the user to geocode tables that have two separate street type fields. I.e. A table that has both Prefix Types (usually preceding the street name) and Suffix Types (usually following the street name).
- **Street Direction:**  
This heading represents a field containing geographical directions. The sample address does not contain a street direction, but an example could be *N*, which would indicate North. For a list of valid street direction entries, see Appendix 5.
- **Suite:**  
This heading represents a field that contains a number, a letter, or a combination of both that represents an apartment, a suite, or a unit of a building. In the sample address, *201* is the suite number. Although this field may contain only numbers, they must be stored as text data.
- **Municipality:**  
This heading represents a field that contains the municipality for an address. This field may or may not be present in a target database table. If the municipality is not present in a table, it may be derived using the *Lookup Municipality via Postal code* option (see the *General Geocoding Options* tab), provided that postal codes are included.
- **Province:**  
This heading represents a field that contains the province in Canada of the address. If the records within a database fall within one province, the *General Geocoding Options* tab offers an alternate to choosing a field.
- **Postal Code:**  
This heading represents a field that contains the postal code for Canada for the address records. Postal Codes must be entered as either 6-digit or 7-digit strings (i.e. with, "N0N 1H0", or without, "N0N1H0", a space).

## PO Box Information

These pieces of information are recognized and removed by GeoPinpoint Suite.

## POI

See definition for Points of Interest.

## POI Code

POI Code refers to POI Type listed in the CanMap product.( Example: Lester B Pearson International Airport has the POI Code CYYZ (See Appendix 4))

## POI Geocoder

Takes the input as the name for the Point of Interest and looks up its geographic location in the form of longitude and latitude from the Point of Interest source database in the Georef;

**Note:** When geocoding data by POI Name on the Input Specifications tab:

**Un-parsed data:** Select the POI Name for the combo box Un-parsed address

**Parsed data:** Select the POI Name for the combo box Street Name.

## POI Point

See definition for Points of Interest.

## Points of Interest

The Enhanced Points of Interest (EPOI) V1.4 file is a national database of nearly 1 million Canadian business and recreational points of interest. Engineered using CanMap® Streetfiles, each EPOI has been accurately geocoded and precisely placed; two criteria that are fundamental to any successful location sensitive service.

This location enriched point of interest database allows users to see and analyse selected point of interest data in a given geographic area, enabling applications such as wireless location-based services (LBS), Web, Telematics, planning, real estate multiple listing services (MLS), retail site analysis, competitive and market research, intelligent routing, sales territory analysis, business and tourism.

## Point of Interest Geocoder

See definition for POI Geocoder

## Populated Place Names

This new product, replaces DMTI Spatial's previous file called the Cities, Towns and Villages (CTV). The Populated Placenames V1.3 database includes Cities, Towns, Villages, Communities, Boundaries and other records describing 'Populated' places.

Based on the Canadian Geographic Names Database as well as the toponymic data from the NTDB (in Urban Areas), this data product has been enhanced by more accurately placing the features in relationship to CanMap® Streetfiles. Each point is flagged with a "Position" code, which categorizes the feature based on its positional accuracy. The data has also been researched and re-categorized where appropriate.



## Postal Boundaries

See definition for FSA

## Postal Code

This heading represents a field that contains the postal code in Canada for the address records. Postal Codes must be entered as either 6-digit or 7-digit strings (i.e. with, "N0N 1H0", or without, "N0N1H0", a space).

The DMTI Spatial six-digit postal code file contains a separate point for each six-digit postal code. The majority of the points are located to the specific address (in the case of large apartment buildings or office towers) or the most representative address (where the same FSALDU (forward sortation area local delivery unit) services multiple addresses). This degree of positional accuracy is made possible because of the postal codes are geocoded using CanMap® street map data.

## Postal Code Geocoder

Takes the input as address information, uses the Postal Code to look up its geographic location in the form of longitude and latitude from the Postal Code point source database in the Georef, or it will use the address information to look up the centre point of the corresponding street segment from street segments based on the source database in Georef.

## Postal Code / Segment Range Geocoder

Takes the input as address information, uses the Postal Code to look up its geographic location in the form of longitude and latitude from the Postal Code point source database in the Georef, or it will use the address information to look up the centre point of the corresponding street segment from street segments based on the source database in Georef.

## PPN

See definition for Populated Place Names.

## Precision Code

The precision code is a numeric return code that is generated to indicate what criterion was used to geocode a point. It provides clarification on how a point location was derived. Appendix 2 contains a detailed explanation of the precision codes.

Each time GeoPinpoint Suite successfully geocodes a record, a precision code is written to the Prescode field (or other user specified field) in the target database table. This code is an indicator of the spatial precision of the geocoded point. The precision code is generated based on the result code and an interpolation code.

An interpolation code is an indicator for address point status that describes whether or not an address was geocoded to a point that exists in the geo-reference database or an interpolated address. GeoPinpoint Suite will return interpolation codes of 0, 20 or 21. Value 0 indicates that the address point is interpolated and its existence in the real world is not guaranteed; value 20 indicates that the address point is the start or end point of a original street segment, and it most likely exists in the real world; and value 21 indicates the address point is both the starting and the end point of the corresponding street

segment (i.e. there is only one address point on the street segment), and the location of this point has been relocated to the centre of the segment. This address point also most likely exists in the real world.

The possible precision code numbers are shown in Chart 2 with the geocoding method and interpolation codes that will generate each one.

## **Pre-Direction**

This heading represents a field containing a geographical direction proceeding the street name. A sample address containing a street pre-direction could be SOUTH RIDGE DR SE. For a list of valid street direction entries, see Appendix 5. Parsing identifies the position of a street direction within an address.

## **Projection**

A system to portray all or part of the earth, which is an irregular sphere, on a 2-D, or flat, surface.

## **Province**

This heading represents a field that contains the province in Canada of the address. If the records within a database fall within one province, the *General Geocoding Options* tab offers an alternate to choosing a field.

## **Provincial Electoral Districts (PED)**

Refers to the area entitled to elect a member to serve in the Provincial Parliament.

## R

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### Raster

Raster data takes an evenly spaced grid (like a piece of graph paper) and places a value in each square, or cell. Raster data is best suited for continuous data such as slope, rainfall, or the amount of light reflecting off the ground (as in a photograph).

### Refine Address by Postal Code

This option is useful in the case where more than a single street segment is a possible match to an address. Enabling this option will allow GeoPinpoint Suite to compare the location of a records postal code to all street segments that are a potential geocoding solution. GeoPinpoint Suite will select the segment that is closest to the postal code for that record. If this option is selected, a field must be entered in the *Postal Code* drop down list.

For example, if the address entered were 100 Bloor St, two segments would be found as matches: one for 100 Bloor St E, and one for 100 Bloor St W. By looking at the location of the postal code, GeoPinpoint Suite is able to make the match to the correct segment, even in a table where street directions are missing or unreliable.

This option is particularly useful when using the functions *Relax Matching on Street Type*, *Relax Matching on Street Direction*, or *Relax Matching on Street Prefix* has been selected.

### Relax

There are options to “relax” the matching criteria for street type, street direction, and street prefix. If any relaxation options are selected, GeoPinpoint Suite will consider all qualifying matches and rank them according to the completeness of the match. The priorities for scoring matches are street name, then street direction, then street type, and finally street prefix.

The *Relax Geocoding Options* tab offers the user the ability to allow GeoPinpoint Suite to relax the rules of how it matches an address. GeoPinpoint Suite can optionally ignore certain components of an address within the table if the data is missing or the data is determined to be questionable. Each option, with its description, is listed below.

### Relax Matching on Street Type

Enabling this option allows geocoding to proceed when all address components match except the street type. This option produces reliable results but is intended for use when street types are missing or unreliable in the target database table.

### Relax Matching on Street Direction

Enabling this option allows geocoding to proceed when all address components match except the street direction. Street direction is a vital component to an address so this option should only be used if street directions are missing or unreliable in the target database table.

## Relax Matching on Street Prefix

Enabling this option allows geocoding to proceed when all address components match except the street prefix. Street prefix is a unique component to an address so this option should only be used if street prefixes are missing or unreliable in the target database table.

## Results

The number of records geocoded by each method can be viewed in the *Results* window. The last heading, which is the total number of records, keeps an overall count. These statistics are updated dynamically as a geocoding session processes which is tracked by the progress bar below the total number of records. This can also be tracked by looking at the Percentage Geocoded statistic.

## Result Code

The result code is a 9-digit return code that is generated to indicate what parts of the address matched during the geocoding process. Appendix 1 contains a detailed explanation of the result codes.

Each time GeoPinpoint Suite attempts to geocode a record, a 9-digit result code, such as 111101001, is written to the Rcode field (or other user specified field) in the target database table. This code indicates the level of geocoding performed for the input address. Each digit represents one aspect of geocoding as defined in Chart 1.

Where a zero occurs as part of a result code, there are two possible interpretations depending on the data input. The first possible interpretation, "Not Found", implies that an address component was entered, such as a municipality, but that municipality was not found in the geo-reference database. The second possible interpretation, "Not Applicable", implies that an address component was not entered. For example, if no municipality field was specified in the *Input Specifications* section of the dialog, then all records would have a zero as the fifth digit of the result code, indication that municipality was not applicable. The result codes generated by GeoPinpoint Suite do not currently distinguish between "Not Found" or "Not Applicable"; a zero is used for both cases.

## Result Code Interpreter

This option calls a tool that assists the user in deciphering result codes (Figure 12). Upon completion of a geocoding session, the user can use this tool to help determine the meaning of any result code that was an outcome of the geocoding session. All results codes relating to the previous geocoding session will appear in the drop down list, or alternatively, the user has the option to manually type in a result code. If the user chooses to manually type in a result code, the *Show Description* must be pressed to display the interpretation of the result code. To dismiss the *Result Code Interpreter*, click the *Exit* button. For a more detailed explanation of result codes, see Appendix 1.

## Rural Route Information

These pieces of information are recognized and removed by GeoPinpoint Suite.

## S

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### Save Settings

This option allows the user to save all of their currently selected geocoding options to a configuration (.cfg) file. This is beneficial for users who geocode multiple tables and wish to use the same geocoding options for another geocoding session. In order for this utility to work, the user must have all of the fields entered on the *Data Sources* tab.

### Scale

The proportion or ratio between a map measurement and the corresponding measurement in the real world. Map scale is usually expressed as a ratio, such as 1:50,000, which means that a measurement of one unit on the map represents 50,000 units on earth.

### Scoring (Geocoding) Matches

The priorities for scoring geocoding matches are street name, then street direction, then street type, and finally street prefix.

### Scrubber

The Address Scrubber module for GeoPinpoint Suite Windows/ActiveX is a new function for beta release clients. This module will scrub, standardize, recognize and restore empty parts of an address. This module should be used when encountering invalid addresses that do not geocode successfully.

The current scrubbing process only works with the address geocoder module and is a GeoPinpoint Suite internal process. Therefore, the “scrubbed” records will not be written back to the input database. Please note that the scrubbing process is intended be used on records that will not geocode and allow a user to geocode them successfully. The Scrubber also requires postal code information in order to better scrub the data.

**Attention!** The proposed methodology for using Scrubber is to geocode the records in the database with the **Address geocoder**, and then turn on Scrubber functionality to try and match more records in the second pass.

The current Address Scrubber module will perform the following:

- Parse an input address
- Test an address for
  1. Postal code correctness;
  2. Province correctness;
  3. Municipality name correctness;
  4. Street name correctness;
  5. Street type correctness;
  6. Street direction correctness;
  7. Street number correctness;
  8. Suite number correctness;
- Failure of Province (2), Municipality name (3), Street name (4) will use built-in Soundex logic to attempt matching if no results are returned

In a future version of the Address Scrubber module, users will be provided with a result code reflecting the validity of each part of an address or a whole address at this time.

**Examples of Scrubbed address records**

#	Input Address	Scrubber Address							
		<u>Street #</u>	<u>Street Name</u>	<u>Street Type</u>	<u>Street Dir</u>	<u>Suite #</u>	<u>Muni</u>	<u>Prov</u>	<u>Postal Code</u>
1	9 GRENADIER DR, HAMILTON, <b>Onzario</b> , L8T4C7	9	GRENADIER	DR			HAMILTON	<b>ON</b>	L8T4C7
2	8 KING ST, <b>BELL ILLE</b> , ON, K8P3J7	8	KING	ST			<b>BELLEVILLE</b>	ON	K8P3J7
3	1 <b>ELzIS</b> AVE, DRYDEN, ON, P8N3G9	1	<b>ELVIS</b>	AVE			DRYDEN	ON	P8N3G9
4	1 BARKER <b>AzENUE</b> , ETOBICOKE, ON, M9V1E4	1	BARKER	<b>AVE</b>			ETOBICOKE	ON	M9V1E4
5	1 BRIDGE ST <b>WzST</b> , BELLEVILLE, ON, K8P1H4	1	BRIDGE	ST	<b>W</b>		BELLEVILLE	ON	K8P1H4
6	7 LAURA ST, <b>ROBINSON</b> , ON, K8H1V3	7	LAURA	ST			<b>PETAWAWA</b>	ON	K8H1V3

1. Invalid province;
2. Invalid muni;
3. Invalid street name;
4. Invalid street type;
5. Invalid street direction;
6. Incorrect muni;

**Examples of Scrubbed records with multiple changes**

#	Input Address	Scrubber Address							
		<u>Street #</u>	<u>Street Name</u>	<u>Street Type</u>	<u>St Dir</u>	<u>Suite #</u>	<u>Muni</u>	<u>Prov</u>	<u>Postal Code</u>
1	1 <b>KEzzETH</b> AVE, <b>MARKHAM</b> , ON, N6A1R6	1	<b>KENNETH</b>	AVE			<b>LONDON</b>	<b>ON</b>	N6A1R6
2	4 WELLINGTON ST, <b>LEzMINGTON</b> , <b>Onzario</b> , N8H4P9	4	WELLINGTON	<b>ST</b>			<b>LEAMINGTON</b>	<b>ON</b>	N8H4P9

1. Invalid street name, invalid municipality
2. Invalid Municipality, invalid province

**Segment Range Geocoder**

Takes the input as address information, uses the Postal Code to look up its geographic location in the form of longitude and latitude from the Postal Code point source database in the Georef, or it will use the address information to look up the centre point of the corresponding street segment from street segments based on the source database in Georef.

**Site & Lot Numbers**

These pieces of information are recognized and removed by GeoPinpoint Suite.

## Six-digit postal code coordinates

The Six Digit Postal Code File is based on the Unique Enhanced Postal Code File, but does not contain the link to Statistics Canada's standard census geographic areas. This file contains the postal code, longitude and latitude of each point, 1996 Census population and dwelling counts and the birth date and retire date of each postal code.

## Soundex

The Soundex module for GeoPinpoint Suite Windows/ActiveX is a new function for beta release clients. This module is an algorithm which uses fuzzy logic to help geocode POI names which suffer from spelling variations, abbreviations, difference in case and/or are incomplete.

The proposed methodology for using Soundex is to geocode the records in the database with the **POI geocoder** first, and then turn on Soundex functionality to try and match more records in the second pass.

**Currently** the Soundex module for GeoPinpoint Suite will perform the following:

- Help geocode to POI names
- Match one or multiple POI names simultaneously

### Examples of Soundex:

Original word	Input word	Output word
Toronto City Hall	Toronto City Hall	Toronto City Hall
Toronto City Hall	City Hall of Toronto	Toronto City Hall
Toronto City Hall	Holl of Sity Toronto	Toronto City Hall
Konberg	Comperg	Konberg

**Future releases** of the Soundex Module for GeoPinpoint Suite will include:

- Ability to match to street names
- Set thresholds for Soundex matching
- Include the Soundex score as part of the output

## Start button

Clicking the *Start* button will commence the geocoding process. While GeoPinpoint Suite is geocoding, any of the three previous tab headings, *Data Sources*, *Input Specifications*, or *Output Specifications*, may be viewed without affecting the session.

Using the *Stop* or *Back* buttons will terminate a current geocoding session, however it can be restarted by clicking the *Start* button again. If the *Overwrite Existing Coordinates* option is not selected, clicking the *Start* button will cause GeoPinpoint Suite to geocode only those records that were not previously geocoded. (GeoPinpoint Suite determines whether or not a record has been previously geocoded by the contents of the fields designated to receive longitude and latitude data.) If the *Overwrite Existing Coordinates* option is selected, pressing the *Start* button will cause GeoPinpoint Suite to return to the beginning of the table and to re-geocode the entire table. The user may wish to select the *Overwrite Existing Coordinates* option prior to restarting the geocoding process if a change has been made to any of the previously selected geocoding options. Otherwise, leaving it unselected and skipping previously geocoded records offers the potential to save time.

## Stop button

Clicking the *Start* button will commence the geocoding process. While GeoPinpoint Suite is geocoding, any of the three previous tab headings, *Data Sources*, *Input Specifications*, or *Output Specifications*, may be viewed without affecting the session.

Using the *Stop* or *Back* buttons will terminate a current geocoding session, however it can be restarted by clicking the *Start* button again. If the *Overwrite Existing Coordinates* option is not selected, clicking the *Start* button will cause GeoPinpoint Suite to geocode only those records that were not previously geocoded. (GeoPinpoint Suite determines whether or not a record has been previously geocoded by the contents of the fields designated to receive longitude and latitude data.) If the *Overwrite Existing Coordinates* option is selected, pressing the *Start* button will cause GeoPinpoint Suite to return to the beginning of the table and to re-geocode the entire table. The user may wish to select the *Overwrite Existing Coordinates* option prior to restarting the geocoding process if a change has been made to any of the previously selected geocoding options. Otherwise, leaving it unselected and skipping previously geocoded records offers the potential to save time.

## Street Alias

This option allows GeoPinpoint Suite to search the geo-reference database for alternative street names for streets that have more than one correct identifying name. For example, a road may be known as Broadway Avenue, and Highway 9. While the name Broadway Avenue may be in the geo-reference database street field, the target database table may have a record with the address on Highway 9. By selecting this option, GeoPinpoint Suite is able to make a match by finding Highway 9 in the geo-reference database Street Alias field.

**Note:** *The Geocode to Street Alias option now includes the previously separate option Geocode to Former Street Name. When GeoPinpoint Suite now searches the Street Alias field in the geo-reference database, it will also search the Former Street Name field. (Former street names are only relevant to Ontario, since many Ontario roads have changed name in recent years as a result of infrastructure reallocation. E.g. Highway 7 in the G.T.A. is now Regional Rd 7.)*

## Street Direction

This heading represents a field containing geographical directions. The sample address does not contain a street direction, but an example could be N, which would indicate North. For a list of valid street direction entries, see Appendix 5.

Recognizing this is based on a direction alias table. (For a list of valid street directions, see Appendix 5.) Parsing identifies the position of a street direction within an address.

## Street Level Detail

The geo-reference database used by GeoPinpoint Suite to geocode all Canadian data is based on the CanMap<sup>®</sup> streetfile. The CanMap<sup>®</sup> streetfile includes street centerlines and address ranges, and it is updated by DMTI Spatial on an ongoing basis. CanMap<sup>®</sup> contains street naming for communities down to, and in some cases, under 1,000 population and street addressing for communities down to, and in some cases, under 2,000 population.



## Street Name

This heading represents the field in the target database table for the name of the street. In the sample address the field for street name would contain Laurier, or Des Laurier if there were no street prefix field.

It can be alphabetic, alphanumeric, or numeric or a set of such words. E.g. Highway 7, 10A Rd, 9th Line, Bloor St

## Street Number

The Street Number heading requires a field containing numeric data, stored as a long integer, while all other headings require fields containing text data.

This heading represents a field that contains only the house/building number portion of the total address. The field should contain the number 100 from the sample address. This field must be formatted as a long integer.

It can be numeric or alphanumeric. Parsing removes alphabetic portion if it is alphanumeric. E.g. 9B 10th Line would become 9 10th Line

## Street Prefix

This heading represents a field that contains words that add description to the street name, but are not a part of the street name themselves. For example, the words *Des*, *De La*, *De L'*, and *The* often precede the actual street name. In the sample address, Des could be located in a separate field in the table to be geocoded. This field is an optional parsed field; the data could alternatively be included as part of the Street Name field.

## Street Prefix Type & Street Suffix Type

This heading is used if the user's database has 2 street type fields. To access both drop down lists, the user must select the *Use Street Prefix and Suffix Type* option located on the *General Geocoding Options* tab. This allows the user to geocode tables that have two separate street type fields. I.e. A table that has both Prefix Types (usually preceding the street name) and Suffix Types (usually following the street name).

If the user is geocoding a table with parsed data that contains two street type fields (a street prefix type and a street suffix type), enabling this option allows the user to input their two street type fields into GeoPinpoint Suite. This option eliminates the user's need of taking their two existing street type fields and combining them into one.

## Street Segment Data Model

A data model based on the geographic information of a street (series of segments). Geocoding using the street segment data model means that the address level geocoding results are all interpolated as opposed a sourced address point.

## Street Type

Recognizing this is based on a street type alias table. (For a list of valid street types, see Appendix 5.) Parsing identifies the position of a street type within an address.

## Suite Number

This heading represents a field that contains a number, a letter, or a combination of both that represents an apartment, a suite, or a unit of a building. In the sample address, 201 is the suite number. Although this field may contain only numbers, they must be stored as text data.

Parsing will recognize this at the beginning or ending of the unparsed field. The suite number can be preceded by defined indicators including “#, SUITE, APARTMENT, APT, and UNIT.” E.g. 90A Cordova Ave Unit # 25B, Apt 25B 100 Bloor St

## Summary Report

This tool generates a summary report of result codes and precision codes for a geocoding session. The report is saved as a text file with a .rept extension. In the *Generate Summary Report* sub-menu, the user is provided with the option to select *Yes* or *No* as the default value for this function. If the user selects *Yes*, upon completion of a geocoding session, GeoPinpoint Suite will prompt the user for where to save the summary report. If the user selects *No*, no summary report will be generated. However, if the default value was set to *No*, but the user wishes to generate a summary report, the user can do this for the most recent geocoding session by selecting *Generate Summary Report* in the sub-menu.

## T

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### Table/SQL

The Table/SQL window must contain the name of the target database table that contains the records to be geocoded. The Data button (Select Table...) can be used to view a list of tables in the specified target database and the user can select the desired table directly from this list to ensure that a valid table name is entered. Within the Table/SQL window the user has the option of using an SQL statement to query out specific records for geocoding. The SQL statement may be typed manually or pasted into the window from another source. The SQL statement will be executed as soon as the user selects the Next button or moves the cursor from the Table/SQL window. The time required for the SQL statement to be executed depends on the database size, the database location, the speed of the computer, and the SQL statement itself. The information in this window is verified with the information in the Target Database window. Any error with respect to the syntax of the SQL statement, the target database table name, or the fields within the target database table will result in an error message when the user selects the Next button or moves the cursor from the Table/SQL window.

### Target Database

GeoPinpoint Suite processes records from database tables, which can only be completed one table at a time. The database containing the table is referred to as the target database, and the table being geocoded at any given time is referred to as the target database table. In the Target Database window, the name and directory of the target database must be entered. If the target database is in MS Access format, the user may click on the MDB button to browse the local or network computers for the desired database. If the user wishes to connect to the target database via ODBC, the ODBC button can be used to connect to the desired database.

### Tools Menu

There are 2 options available to the user in the *Tools* menu:

- Generate Summary Report:

This tool generates a summary report of result codes and precision codes for a geocoding session. The report is saved as a text file with a .rept extension. In the *Generate Summary Report* sub-menu, the user is provided with the option to select *Yes* or *No* as the default value for this function. If the user selects *Yes*, upon completion of a geocoding session, GeoPinpoint Suite will prompt the user for where to save the summary report. If the user selects *No*, no summary report will be generated. However, if the default value was set to *No*, but the user wishes to generate a summary report, the user can do this for the most recent geocoding session by selecting *Generate Summary Report* in the sub-menu.

- Result Code Interpreter:

This option calls a tool that assists the user in deciphering result codes (Figure 11). Upon completion of a geocoding session, the user can use this tool to help determine the meaning of any result code that was an outcome of the geocoding session. All results codes relating to the previous geocoding session will appear in the drop down list, or alternatively, the user has the option to manually type in a result code. If the user chooses to manually type in a result code, the *Show Description* must be pressed to display the interpretation of the result code. To dismiss the *Result Code Interpreter*, click the *Exit* button. For a more detailed explanation of result codes, see Appendix 1.

## **Topography**

The configuration of a surface including its relief and the position of its natural and man-made features

## U

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### Unique Enhanced Postal Code File (UEP)

The Unique Enhanced Postal Code File contains 819,547 (as of V6.3) six digit postal codes in Canada and provides a link to Statistics Canada's standard census geographic boundaries. The UEP is more commonly used than the Multiple Enhanced Postal Code File as it allows for a 1:1 relationship (one postal code match to one postal code location).

The Six Digit Postal Code File is based on the Unique Enhanced Postal Code File, but does not contain the link to Statistics Canada's standard census geographic areas. This file contains the postal code, longitude and latitude of each point, 1996 Census population and dwelling counts and the birth date and retire date of each postal code.

### Unparsed Address

Addresses in a table may be contained all in one field (unparsed), or may be stored as individual components in multiple fields (parsed). An address that is unparsed might have the following components contained in a single field: street number, street name, street type, street direction, and apartment or suite number. Intersection locations (e.g. Yonge St && Bloor St W) are also considered unparsed. An address that is parsed is split into its individual components in multiple fields. These fields might include: street number, street name, street type, street direction, and apartment or suite number. Each of these address components will be contained within its own field in the table.

In both parsed and unparsed data sets, the postal code, municipality, and province data should occupy separate fields in the table.

To demonstrate the field matching options for unparsed addresses, 201-100 Rue Des Laurier will be used as a sample address.

- Unparsed Address:

This heading represents an address field that contains all the relevant street address components. This field may contain a street number, a street prefix (words such as *Des*, *De La*, *De L'*, and *The* that add to, but may not be part of the street name), a street name, a street type, a street direction, and an apartment or a suite number. For example, the street address 201-100 Rue Des Laurier contains an apartment number (201), a street number (100), a street type (Rue), a street prefix (Des), and a street name (Laurier). When a suite or apartment number, a street prefix, or a street direction is not relevant to an address, placeholders do not need to be included. If there are records in the table that include intersection data, they would also occupy an unparsed address field. For example, this field might contain Yonge St && Bloor St W.

**Note:** When geocoding data by POI Name with unparsed data, select POI Name under this field.

- Municipality:

This heading represents a field that contains the municipality for an address. This field may or may not be present in a target database table. If the municipality is not present in a table, it may be derived using the *Lookup Municipality via Postal code* option (see the *General Geocoding Options* tab), provided that postal codes are included.

- Province:

This heading represents a field that contains the province in Canada of the address. If the records within a database fall within one province, the *General Geocoding Options* tab offers an alternate to choosing a field.

- Postal Code:

This heading represents a field that contains the postal code in Canada for the address records. Postal Codes must be entered as either 6-digit or 7-digit strings (i.e. with,"NON 1H0", or without,"NON1H0", a space).

To demonstrate the field matching options for parsed addresses, the same example as above, 201-100 Rue Des Laurier, will be used.

- Street Number:

This heading represents a field that contains only the house/building number portion of the total address. The field should contain the number 100 from the sample address. This field must be formatted as a long integer.

- Street Prefix:

This heading represents a field that contains words that add description to the street name, but are not a part of the street name themselves. For example, the words *Des*, *De La*, *De L'*, and *The* often precede the actual street name. In the sample address, *Des* could be located in a separate field in the table to be geocoded. This field is an optional parsed field; the data could alternatively be included as part of the Street Name field.

- Street Name:

This heading represents the field in the target database table for the name of the street. In the sample address the field for street name would contain Laurier, or Des Laurier if there were no street prefix field.

**Note:** When geocoding data by POI Name with parsed data, select POI Name under this field.

- Street Type:

This heading is used if the user's database has 1 street type field. It represents the field in the target database table that contains the street type. The street type in the example is Rue. For a list of valid street types, see Appendix 5.

- Street Prefix Type & Street Suffix Type:

This heading is used if the user's database has 2 street type fields. To access both drop down lists, the user must select the *Use Street Prefix and Suffix Type* option located on the *General Geocoding Options* tab. This allows the user to geocode tables that have two separate street type fields. I.e. A table that has both Prefix Types (usually preceding the street name) and Suffix Types (usually following the street name).

- Street Direction:

This heading represents a field containing geographical directions. The sample address does not contain a street direction, but an example could be N, which would indicate North. For a list of valid street direction entries, see Appendix 5.

- Suite:

This heading represents a field that contains a number, a letter, or a combination of both that represents an apartment, a suite, or a unit of a building. In the sample address, 201 is the suite number. Although this field may contain only numbers, they must be stored as text data.

- Municipality:

This heading represents a field that contains the municipality for an address. This field may or may not be present in a target database table. If the municipality is not present in a table, it may be derived using the *Lookup Municipality via Postal code* option (see the *General Geocoding Options* tab), provided that postal codes are included.

- **Province:**  
This heading represents a field that contains the province in Canada of the address. If the records within a database fall within one province, the *General Geocoding Options* tab offers an alternate to choosing a field.
- **Postal Code:**  
This heading represents a field that contains the postal code for Canada for the address records. Postal Codes must be entered as either 6-digit or 7-digit strings (i.e. with,"NON 1H0", or without,"NON1H0", a space).

## Parsing Rules for Unparsed Addresses

An unparsed address is one in which the address components, which might include street number, street name, street type, street direction, and unit or suite, are contained in a single field within a table. Some examples of unparsed data include:

- 450-11 Allstate Pky
- 31 Windhill Cres
- 1211 Yonge St Suite 212
- Weston Rd && Finch Ave W

GeoPinpoint Suite separates each of the address components by identifying separators in the address field. The primary separator is a space, and it is removed when parsing. Other separators include " - # / ", but they remain as a part of the address after parsing. Certain punctuation that exists including " . , ; " is removed when parsing.

The address is separated into "tokens" that are analyzed based on their data type (e.g. number for a street number) and position in the field. When parsing, GeoPinpoint Suite handles the following address components:

## Use Constant for Province

When the target database table contains records for only one province, the two-letter abbreviation for that province may be entered here. The accepted abbreviations for Canadian provinces and territories are listed in Table 3 (see GeoPinpoint Suite Windows user manual).

This feature is particularly useful if there is no provincial field in the target database table and it contains records that are all in the same province. This option still can be used however, even if there is a provincial field. If this is the case and a provincial field was also identified in the headings on the left side of the dialog, that field will be ignored in lieu of the data entered here.

**Note:** *GeoPinpoint Suite currently handles only Canadian data.*

## Use Intersection Delimiter

If geocoding by intersection is desired in addition to address level geocoding, this option should be selected. If the window that is adjacent to the *Use Intersection Delimiter* heading is left blank, the default delimiter of “&&” is used. For example, GeoPinpoint Suite will interpret a record with the entry Yonge St && Bloor St W as being the intersection of Yonge St and Bloor St W. Alternatively, a custom delimiter of not more than 2 digits can be entered in the window.

If intersection geocoding is desired, the *Use Un-Parsed Address Field* option on the *General Geocoding Options* tab must be selected. GeoPinpoint Suite is able to geocode unparsed addresses and intersection data (and points of interest) at the same time, as long as the same specified address field is used to store all the data. Parsed address data cannot be processed at the same time as intersection data (nor can points of interest).

Since GeoPinpoint Suite recognizes intersection data by the delimiter, it is important to use a symbol that does not appear as part of any of the addresses.



## V

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### **Vector**

Vector data is the storage of X,Y,Z coordinates connected to form points, lines, areas, and volumes. Vector data is best suited to store discrete, well-defined data that can clearly be delimited. Location of oil wells (points), street centerlines (lines), timber stands (areas), and groundwater tables (volumes) are good candidates for vector storage.

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