

# Identity Resolution Guide

D&B Direct+ Identity Resolution (IDR) uses input criteria to find the best candidates in its extensive database of entities. It uses proprietary algorithms to identify the best matches and returns those matches with detailed information about what criteria was used to find the match.

## Identity Resolution Steps

1. Cleanse, Parse, and Standardize
2. Retrieve candidates
3. Evaluate and decide

Identity Resolution API, Batch Match, and High-Volume Match perform all 3 of these steps.

## Cleansing, Parsing, and Standardization

Cleansing, Parsing and Standardization maximizes the impact of the inquiry in identifying candidates.

### Cleanse

- Remove extraneous characters.
- Convert to standard abbreviations (e.g., N = North).
- Replace vanity with standard city names (e.g., Westwood to Los Angeles).
- Convert text versions of numbers to numeric equivalent.
- Remove noise and low-value words (e.g., INC, CO).

### Parse

- Segregate address components.
- Correct street and city names.
- Parse freeform text into logical subcomponents.
- Generate latitude and longitude.

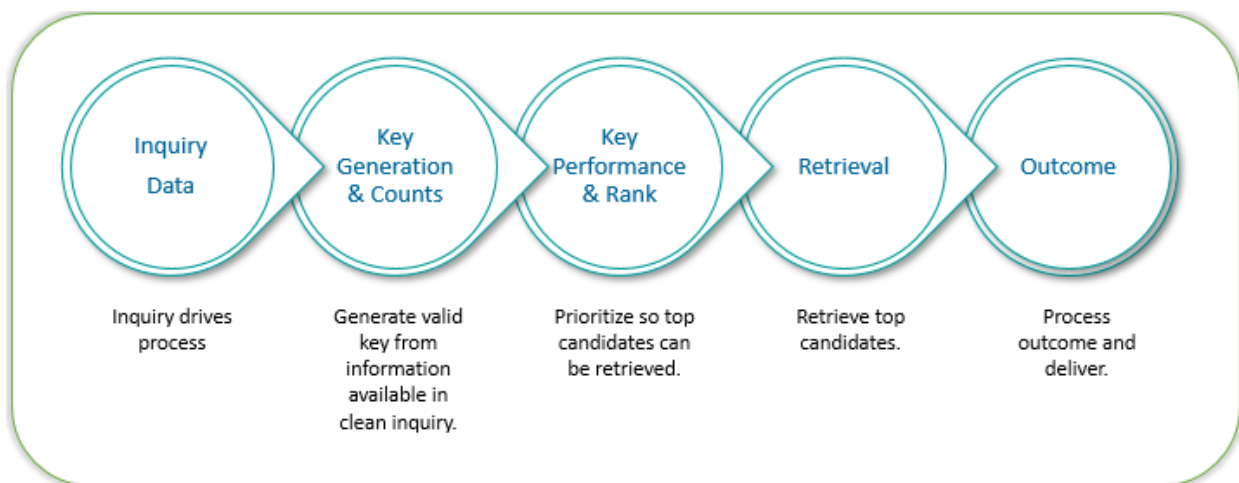
### Standardize

- Remove plurals.

- Standardize words and phrases.
- Remove punctuation.
- Correct spelling.
- Format to postal standards.

Request		Cleanse	Parse	Standardize
Name	Alpha Plastics of L.V.	Alpha Plastics LV		ALPHA PLASTIC LV
Addresses	123 N ELM STR, BETHLEHM PA 18025		Street number: 123 Street name: Elm St. City: Bethlehem State: PA Zip: 18025 Zip Ext: 1234 Latitude:40.837470 Longitude:-73.91053 3 Geocode: 000	

## Retrieve Candidates



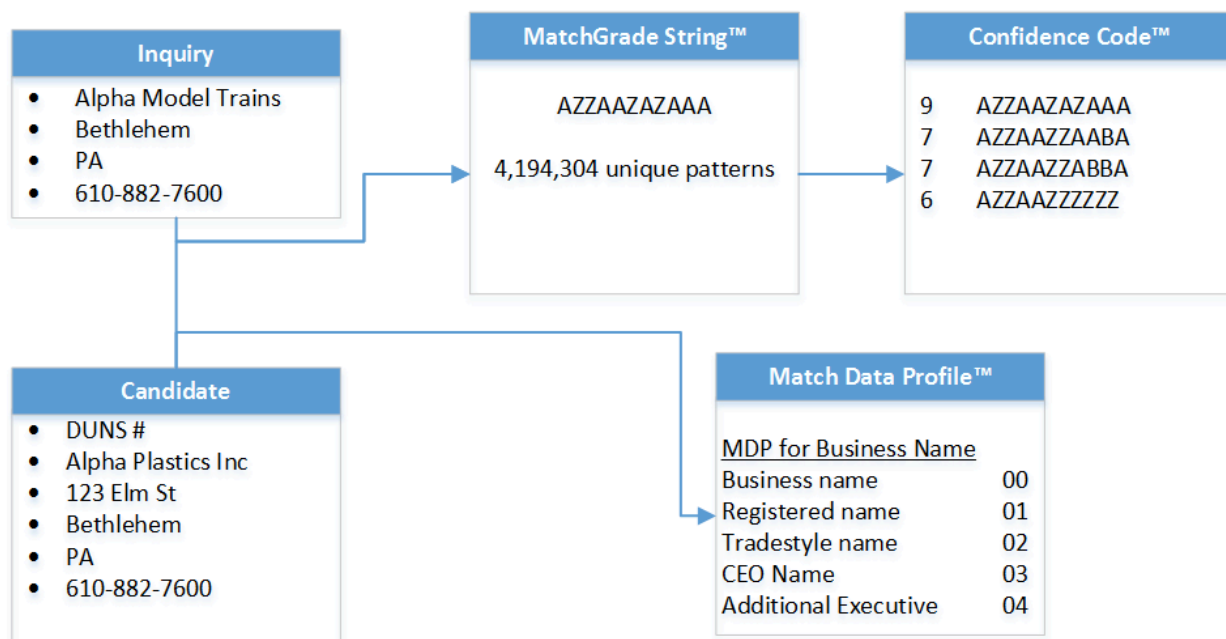
D&B Direct+ stores reference files containing multiple indicia such as name, address, telephone and others allowing multiple match points for the same entity.

- Name types, which may include trade names, executive names, and other.
- Address types, which may include physical, mailing, and former.
- Phone, which may include current and former.

For example:

Inquiry		D&B Reference File
Joe's Pizza 7 Carmine St Manhattan, NY 10014	- Joe's Pizza = Trade style for Golden Pizza Inc - Vanity City name replaced by primary city (New York)	Golden Pizza Inc 7 Carmine St New York, NY 10014-4441

## Evaluate and Decide



- MatchGrade String (MGS)  
Evaluation of each inquiry data element based on similarity between the cleansed inquiry data and Reference File candidate.
- Confidence Code (CC)  
Qualitative evaluation indicating the overall match quality for each inquiry.
- Match Data Profile (MDP)  
Information on the type of data used to make the match.

## MatchGrade Strings

MatchGrade Strings provide qualitative assessments between inquiry and reference components. These strings provide insights on quality and rationale for use case specific acceptance criteria.

Each evaluated component receives one of the following grades:

Grade	Definition	Example
A	Considered the same	Alpha Plastics vs. Alpha Plastics Co.
B	Some similarity	Alpha Plastics vs. Alpha Plastics & Metal
F	Considered different	Alpha Plastics vs. Alpha Plumbing
Z	Missing information; cannot make conclusion	Inquiry and/or reference data are blank

The components are:

- Business name
- Street Number
- Street Name
- City
- State
- PO Box
- Phone
- Postal Code
- Density (the number of businesses within the same Postal Code)
- Uniqueness (the number of unique inquiry business names within a given region, country, or relevant jurisdiction)
- Sic

## Confidence Code

Confidence codes are based on the detailed MatchGrade Strings™; over 4 million string combinations are mapped to 10 Confidence Codes, allowing for broad categorization of matched records. The higher the number, the higher the confidence that it is an accurate match.

The algorithms that are used to by Identity Resolution assign a value between 1 and 10 representing the degree of certainty that a candidate is a suitable match based on the criteria provided. Each Identity Resolution request returns entities whose Confidence Code value (when rounded to the nearest whole number) is equal to or exceeds the threshold value.

**Match Data Profile**

Match Data Profile (MDP) codes detail the type of information contained in the reference record.

Match Data Profile (MDP) Codes indicate if and how each component type was matched in the returned candidate.

The Match Data Profile appears in the API response as follows:

```
'matchDataProfile': '0100000098989800000098009898',
'matchDataProfileComponentsCount': 14,
'matchDataProfileComponents': [
  {
    'componentType': 'Name',
    'componentValue': '01'
    ...  }
```

With an entry for each Component Type. Below is an example for Business Name. A reference for all codes can be found under [Appendix: Match Data Profile \(MDP\) Codes Reference](#)

Customer Input Name	D&B Name Returned	MDP Code for Business Name	Matched To
Smith Bros Clothiers	Smiths Bros Clothiers, Inc	00	Business Name

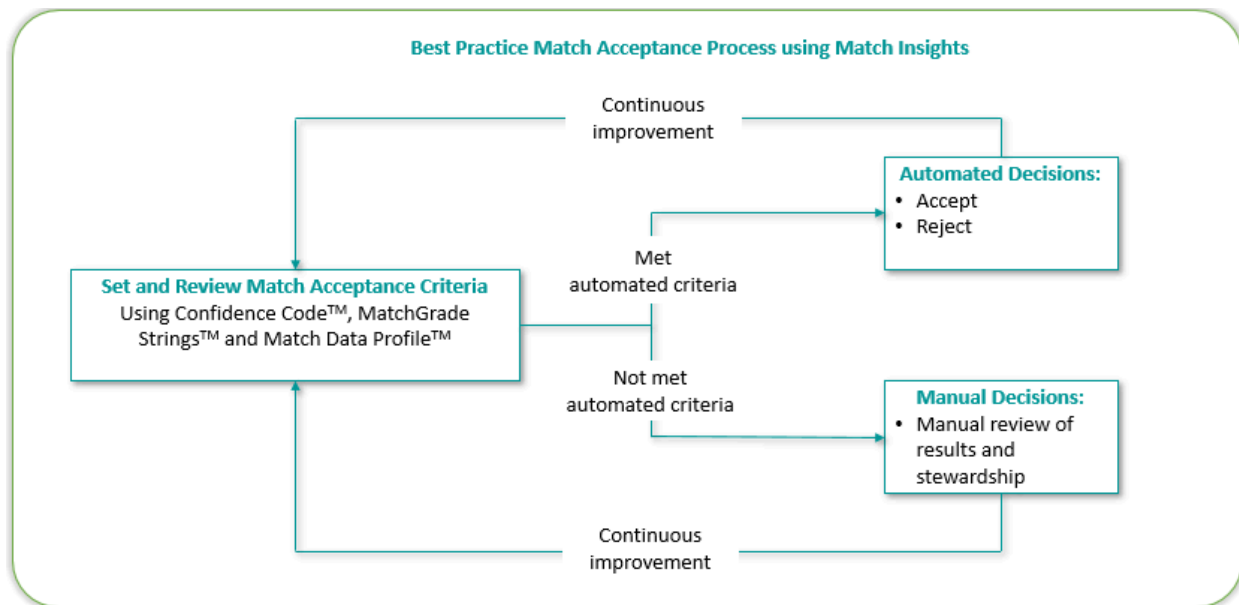
Smith Bros Cloth Inc	Smiths Bros Clothiers, Inc	01	Registered Name
Smiths' Clothes	Smiths Bros Clothiers, Inc	02	Tradestyle
Edward Smith	Smiths Bros Clothiers, Inc	03	CEO Name
John Smith	Smiths Bros Clothiers, Inc	04	Additional Executive
SBC LLC	Smiths Bros Clothiers, Inc	10	Registered Acronym
Gorman & Sons	Gorman Brothers Acquisition	05	Former Business Name
Thomas Johnson	Gorman Brothers Acquisition	07	Former CEO Name

### **nameMatchScore**

The nameMatchScore allows you to further segment quality when a Business Name is matched, so, for example, if have lots of Bs for Name, you can see which are better than others using the nameMatchScore.

nameMatchScore returns a number from 0 to 100; the higher the number, the better the match.

## **Evaluating Match Results**



## Match Types

Depending on the criteria provided, the system performs a specific match type.

This is identified in the response; for example:

```
"matchDataCriteria": "Name and Address Lookup",
```

The D&B Identity Resolution engine inspects the Request Parameters provided and determines how to yield the best results. The following list explains the order in which the parameters will be evaluated:

## Precedence for Transactional and Batches

Precedence	Lookup Type	Notes
1	D-U-N-S	D-U-N-S Number®

2	Registration	<p>A Registration lookup is triggered first when the request includes the following, If resulted candidates have low confidence code then match will be performed based on name or address provided and does not meet any of the above rules:</p> <ul style="list-style-type: none"> <li>- Registration Number</li> <li>- Registration Number Type</li> <li>- Name</li> <li>- Street</li> <li>- Locality</li> <li>- Region</li> <li>- Country</li> </ul>
3	Name & Address	<p>Name &amp; Address Lookup is triggered when the request includes the following and does not meet any of the above rules:</p> <ul style="list-style-type: none"> <li>- Name</li> <li>- Street</li> <li>- Locality</li> <li>- Region</li> <li>- Country</li> </ul>
4	Telephone Number	<p>A Telephone Number lookup is triggered when the request includes the following and does not meet any of the above rules:</p> <ul style="list-style-type: none"> <li>- Telephone Number</li> <li>- Country</li> </ul>
5	Domain/Email	<p>A Domain lookup is triggered when the request includes the following and does not meet any of the above rules:</p> <ul style="list-style-type: none"> <li>- URL (or) Email</li> </ul> <p>Note:</p> <ul style="list-style-type: none"> <li>• If both URL and Email are provided, the domain from the URL takes priority.</li> <li>• If no country code is provided, the Global Ultimate is returned.</li> <li>• If a country code is provided and multiple D-U-N-S Numbers within the country have the specified domain, the Domestic Ultimate is returned.</li> <li>• If a Region is provided and multiple D-U-N-S Numbers within the Region have the specified domain, the headquarters is returned.</li> </ul>



## Asian Language Matching

D&B Direct+ Identity Resolution provides a single API to request matches in all supported languages.

Asian language is only supported for Name and Address lookup.

The system determines the language to use as follows:

1. If **inLanguage** parameter is NOT provided, then the system sets **inLanguage** to **"en-US"**.
2. If **inLanguage** parameter specifies any of the supported languages (below), that language is used.
3. If **inLanguage** is set to **"auto"**:
  1. When name or name and address lookup is used, the system attempts to auto-detect the language using **name** and **addressLine1** parameters:
    - If no character of above languages is detected in name or **streetAddressLine1** query parameters, then **inLanguage** parameter is set to **en-US**.
    - If any character of above languages is detected in name or **streetAddressLine1** query parameters, then
      - for China, Japan, Taiwan, South Korea and Hong Kong countries/Markets, **inLanguage** parameter is set to **zh-hans-CN**.
      - for other countries/markets, error is returned.
  2. When any lookup type is not "name and address", **inLanguage** is set to "en-US".

## Appendix: Match Data Profile (MDP) Codes Reference

### Business Name Profile Code

This code indicates where the name request value was found.

Code	Match To	Notes
00	Primary Name.	
01	Registered Name.	Not applicable for US and Canada

02	Trade Style Name.	
03	Name of CEO or other primary contact.	
04	Additional Executive Name.	
05	Former name.	
06	Reserved for future use.	
07	Name of former CEO or other primary contact.	
08	Reserved for future use.	
09	Short Abbreviated Name.	Available for limited markets, where applicable.
10	Registered Acronym.	Available for limited markets, where applicable.
11	Brand name for a brand or product is owned by the subject.	Available for limited markets, where applicable.
12	Search Name.	Available for limited markets, where applicable.
13	Trademark Name.	Not applicable for United States and Canada.
14	Marketing Name. This name is assigned to the business for marketing purposes. Usually this will be a name created by D&B and not one which is officially used by the business.	Not applicable for United States and Canada.
15	Known by Name.  This is any other name by which the entity is known.	Not applicable for United States and Canada.
16	Reserved for future use.	
17	Headquarter Business Name.	Not applicable for United States and Canada.

18	Registered Tradestyle Name	Not applicable for United States and Canada.
19	Alternative Language Name	Not applicable for United States and Canada.
20	Organization Identification Number; full match. The Organization Identification Number is a business identification number used in some countries for business registration and tax collection. Examples include CRO numbers in the U.K. and the French Siren numbers.	
21	Reserved for future use.	
30	Primary Name, but the legal designator (business type) of the candidate does not match the inquiry business type.	
31	Registered Name, but the legal designator (business type) of the candidate does not match the inquiry business type.	Not applicable for United States and Canada.
32	Trade Style Name, secondary or additional name used by the business, but the legal designator (business type) of the candidate does not match the inquiry business type.	
33	Former Business Name, but the legal designator (business type) of the candidate does not match the inquiry business type.	
34	Former Tradestyle Name, but the legal designator (business type) of the candidate does not match the inquiry business type.	Reserved for future use.
35	Short or abbreviated name for the business, but the legal designator (business type) of the candidate does not match the inquiry business type.	Available for limited markets, where applicable.
36	Registered Acronym, but the legal designator (business type) of the candidate does not match the inquiry business type.	Available for limited markets, where applicable.
37	Brand Name, but the legal designator (business type) of the candidate does not match the inquiry business type.	Available for limited markets, where applicable.
38	Search Name, but the legal designator (business type) of the candidate does not match the inquiry business type.	Available for limited markets, where applicable.

39	Trademark Name, but the legal designator (business type) of the candidate does not match the inquiry business type.	Not applicable for United States and Canada.
40	Marketing Name, but the legal designator (business type) of the candidate does not match the inquiry business type.	Not applicable for United States and Canada.
41	Known by name, but the legal designator (business type) of the candidate does not match the inquiry business type.	Not applicable for United States and Canada.
42	Headquarter Business Name, but the legal designator (business type) of the candidate does not match the inquiry business type.	Not applicable for United States and Canada.
43	Registered Tradestyle Name, but the legal designator (business type) of the candidate does not match the inquiry business type.	Not applicable for United States and Canada.
44	Alternative Language Name, but the legal designator (business type) of the candidate does not match the inquiry business type.	Not applicable for United States and Canada.
50	Domain, the domain resolved from Input URL field.	
60	Domain, the domain resolved from Input Email field.	
98	No D&B Data exists for this field.	
99	No Data in inquiry for this field.	
97	Unknown Name Type.	

## Street Number Profile Code

This code indicates where the number portion of the streetAddressLine1 request value was found. The system does not look for the number in a different address type than Street Name; if found the code will be the same as Street Name Profile Code.

Code	Matched To
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00	Primary Address
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01	Registered Address
02	Former Address
03	Additional Address (Executive)
98	No D&B Data exists for this field
99	No Data in inquiry for this field
97	Unknown Address Type
96	Unresolved

### Street Name Profile Code

This code indicates where the street portion of the streetAddressLine1 request value was found.

Code	Matched To
00	Primary Address
01	Registered Address
02	Former Address
03	Additional Address (Executive)
98	No D&B Data exists for this field
99	No Data in inquiry for this field
97	Unknown Address Type
96	Unresolved

## City Profile Code

This code indicates where the locality request value was found.

Code	Matched to
00	Primary Address
01	Registered Address
02	Former Address
03	Additional Address (Executive)
04	Mailing Address
98	No D&B Data exists for this field
99	No Data in inquiry for this field
97	Unknown Address Type
96	Unresolved

## State Profile Code

This code indicates where the region request value was found.

Code	Matched to
00	Primary Address
01	Registered Address
02	Former Address
03	Additional Address (Executive)

98	No D&B Data exists for this field
99	No Data in inquiry for this field
97	Unknown Address Type
96	Unresolved

## PO Box/Mailing Profile Code

This code indicates where the PO Box value was found.

Code	Matched to
00	Primary Address
02	Former Address
03	Additional Address (Executive)
98	No D&B Data exists for this field
99	No Data in inquiry for this field
97	Unknown Address Type
96	Unresolved

## Phone Profile Code

This code indicates where the telephoneNumber request value was found.

Code	Matched to
00	Current Phone

02	Former Phone
98	No D&B Data exists for this field
99	No Data in inquiry for this field

## Postal Code Profile Code

This code indicates where the postalCode request value was found.

Code	Matched to
00	Data Present
98	No D&B Data exists for this field
99	No Data in inquiry for this field
96	Unresolved

## DUNS Profile Code

This code indicates where the D-U-N-S Number was found.

Code	Matched to
00	Data Present
98	No D&B Data exists for this field
99	No Data in inquiry for this field



## SIC Profile Code

Code	Matched to
00	Data Present
98	No D&B Data exists for this field
99	No Data in inquiry for this field

## Density Profile Code

This code indicates the availability of data for this criteria.

Code	Matched to
00	Data Present
98	No D&B Data exists for this field
99	No Data in inquiry for this field

## Uniqueness Profile Code

This code indicates the availability of data for this criteria.

Code	Matched to
00	Data Present

98	No D&B Data exists for this field
99	No Data in inquiry for this field

## Registration Number (National ID) Profile Code

This code indicates the availability of data for this criteria.

Code	Matched to
00	Data Present
98	No D&B Data exists for this field
99	No Data in inquiry for this field

## URL Profile Code

This code indicates where the url or email request value was found.

Code	Matched to
00	Data Present
50	Domain, the domain resolved from Input URL field.
60	Domain, the domain resolved from Input Email field.
98	No D&B Data exists for this field
99	No Data in inquiry for this field