SOLUTION BRIEF

Senzing Explainability

Delivering Trust & Confidence

Why Explainability is Critical for Entity Resolution

It's important that the results of your entity resolution system are easily explainable.
Business users, data scientists and auditors all want to know why records matched or didn't, as well as the details of how decisions were made.

First, explainability helps you and others understand and trust how your system works.
If you don't have full confidence in the results that your entity resolution system delivers, it's hard to feel comfortable making important decisions based on those results. Plus, there are times when you will need to explain why and how you made a business decision the way you did. Explainability helps you verify and demonstrate in detail how data-driven decisions were made.

SENZING EXPLAINABILITY PROVIDES HUGE BENEFITS	
TRUST & CONFIDENCE	**COMPLIANCE & AUDITS**
Explainability enables you and others to have confidence in your results.	Explainability lets you meet compliance and audit requirements with specific details.

Second, explainability is extremely important for compliance and audits.
Regulators and other compliance auditors may require you to explain why specific matches were made, or not made, and exactly how the records involved came together. For example, you might be asked by a regulator why you approved or denied a transaction.

Matching engines have always been mostly unexplainable.
Due to this, many people lose confidence in their entity resolution results. New tools that explain how decisions are made can go a long way to improving credibility for the accuracy of these systems. However, many of today's entity resolution systems are based on artificial intelligence (AI) and machine learning (ML). For these systems, explaining why and how decisions were made can be incredibly difficult or impossible. This is not the case with Senzing® entity resolution.

Senzing delivers the most trustworthy entity resolution results.
With Senzing entity resolution's explainability tools, in just a few clicks or keystrokes you can clearly see why a match was made or not, as well as the details of how an entity evolved.

Watch Senzing CEO Jeff Jonas discuss why explainability is crucial today.

How Senzing Explainability Works

Senzing explainability functions include why, why not, and how. Together these functions allow you to explore why records matched or didn't match, and provide you with full visibility into all the details about how decisions were made.

WHY

The why function allows you to ask the Senzing system why records matched. The Senzing API then produces a detailed account showing you all the scores and principles used to make the match. For example, how close the names were, how close the addresses were, and which attributes were the same.

SENZING EXPLAINABILITY FUNCTIONS		
WHY	**WHY NOT**	**HOW**
Why gives you the reasons and confidence scores for why a matching decision was made.	Why not gives you the reasons and scores for why a matching decision was not made.	How displays easy-to-digest, step-by-step details on how an entity came together.

WHY NOT

The why not function allows you to ask the system why two records didn't match. The Senzing API then returns specific details about why records didn't come together, including which attributes were the same, which differed, and why a match wasn't made.

HOW

The how function provides details about the decisions that took place over time to construct an entity. For example, two records came together, and then a third and fourth record were added. Essentially the how function produces a series of why function results. You can view the how decisioning waterfall process with full transparency in summary, tree or table format views.

EXPLAINABILITY RESULTS

The data generated by the explainability functions provide information including:

- Color coded results, such as green for a close match, red for not a match, and yellow for a possible match
- Scores indicating the closeness of a match
- Parentheses containing numbers that show how many times a value occurs within a specific entity
- Brackets containing numbers that show how many entities share the value and other symbols that indicate why values weren't used to construct an entity

See below for examples of the types of results each function provides.

WHY

DATA SOURCES	CUSTOMERS: 2072	REFERENCE: 2071
WHY RESULT	NAME+ADDRESS+PHONE	NAME+ADDRESS+PHONE
NAME	Univrsl Export Inc [1] └─ Universal Exports (org:87)	Universal Exports [4] └─ Univrsl Export Inc (org:87) Universal Exports USA [1]
ADDRESS	100 Howard Hughs Plaza Las Vegas NV 89111 [1] └─ HUGHES PLAZA, 100 HOWARD HUGHES WAY, LAS VEGAS, NV 89111 [1] (full:92)	HUGHES PLAZA, 100 HOWARD HUGHES WAY, LAS VEGAS, NV 89111 [1] └─ 100 Howard Hughs Plaza Las Vegas NV 89111 [1] (full:92)
PHONE	800-111-1234 [1]	800-111-1234 [1]

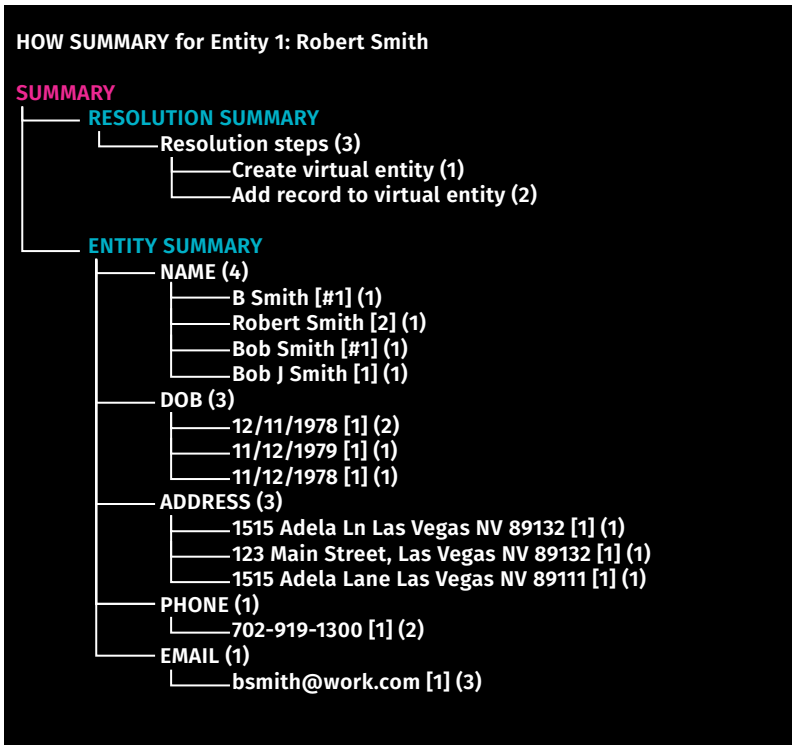
In this **WHY** example, customer 2072 matches reference record 2071 based on name, address and phone. The names scored 87, the addresses scored 92 and the phone number was identical.

WHY NOT

ENTITY ID	1	5
DATA SOURCES	CUSTOMERS: 4 records	CUSTOMERS: 1005 WATCHLIST: 1006
RELATIONSHIPS	NAME+ADDRESS-DOB	NAME+ADDRESS-DOB
WHY NOT RESULT	NAME+ADDRESS-DOB	NAME+ADDRESS-DOB
NAME	Robert Smith [2] └─ Robbie Smith (full:97|giv:95|sur:100) Bob J Smith [1] B Smith [#1] Bob Smith [#1]	Robbie Smith [1] └─ Robert Smith (full:97|giv:95|sur:100) Robert E Smith Sr [1]
DOB	12/11/1978 [1] └─3/31/1954 [1] full:58) 11/12/1978 [1] 11/12/1979 [1]	3/31/1954 [1] └─12/11/1978 (full:58)
ADDRESS	123 Main Street, Las Vegas NV 89132 [1] └─123 Main St, Las Vegas (full:99) 1515 Adela Lane Las Vegas NV 89111 [1] 1515 Adela Ln Las Vegas NV 89132 [1]	123 Main St, Las Vegas [1] └─ 123 Main Street, Las Vegas NV 89132 (full:99) 123 E Main St Henderson NV 89132 [1]

This **WHY NOT** example shows that entities 1 and 5 have a close name and address match, but do not match because of a different date of birth (DOB). These entities are possibly related.

HOW



This **HOW SUMMARY** example shows the number of steps taken to create Entity 1 and a summary of the entity's details.

The Robert Smith entity includes four names, three DOBs, three addresses, one phone and one email.

This **HOW CONCISE** report example shows how Entity 1 was formed.

The entity was created when customers 1002 and 1004 matched with a close name, DOB and address.

Customer 1001 was added to the entity due to a matching name, DOB, phone and email.

Finally, customer 1003 was added because it had a matching name, DOB and email.

Senzing Explainability tools are part of our free and easy-to-use Exploratory Data Analysis (EDA) Tools. Senzing EDA tools are included with the Senzing API.

For more information about Senzing Explainability, contact sales@senzing.com