

Informatica Data Quality





Agenda

- Data Quality Overview
- Release 9.1 Architecture Overview
- Informatica Analyst
- Address Validation Overview
- Data Quality Matching
- PowerCenter Integration





Informatica Data Quality



Data Quality Overview

Informatica Data Quality

Informatica Data Quality provides...

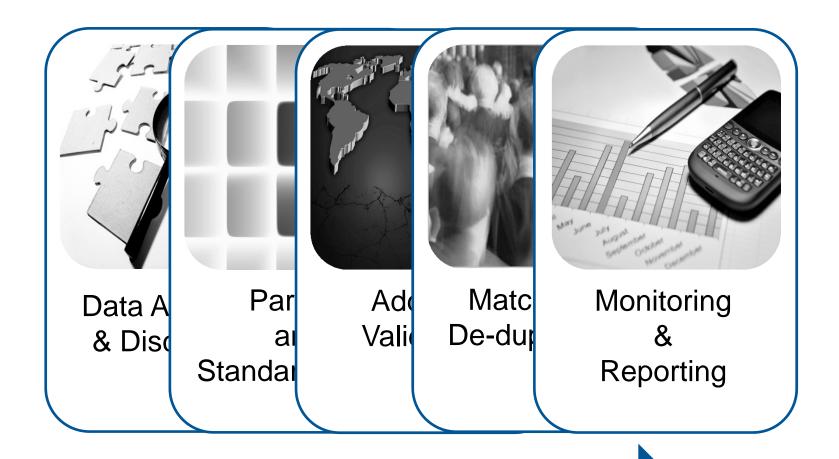
Powerful analysis, cleansing, matching, exception handling, reporting and monitoring capabilities that enable IT and the business to manage enterprise-wide data quality initiatives.







Frequent Requirements



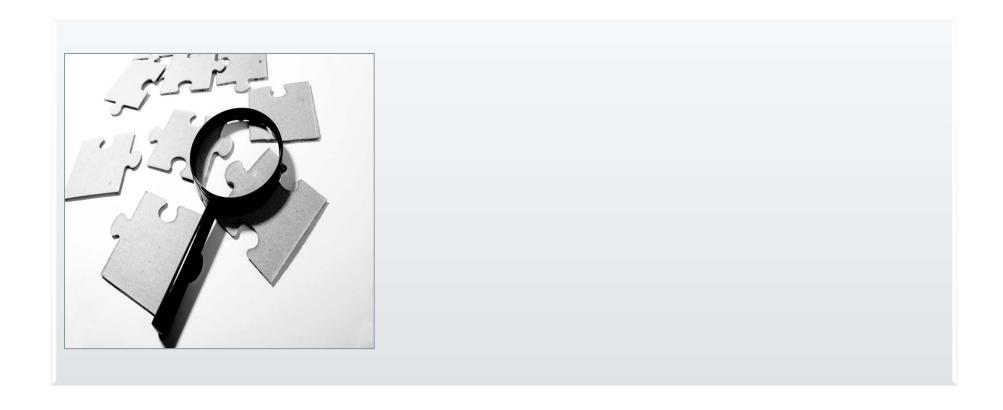
And do this for all data types...







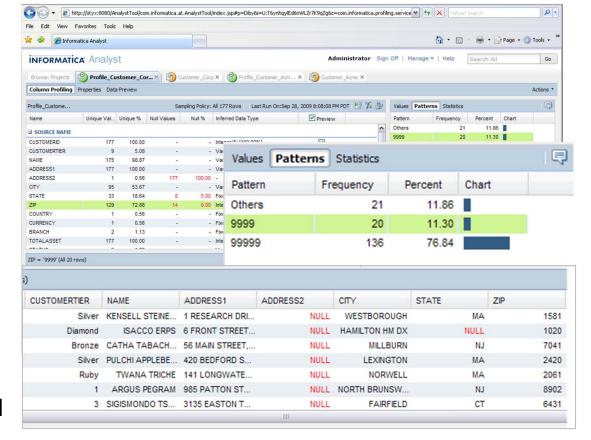
Data Analysis and Discovery







Web Based Analyst Tools to Profile Your Data



Data Steward

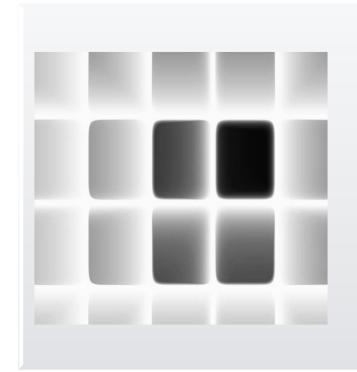
Increase productivity and efficiency by enabling the business to proactively take responsibility for data quality and reduce their reliance on IT.







Parsing & Standardization



The key objectives are:

- to transform and parse data to multiple fields
- to correct completeness, conformity, and consistency problems
- to standardize field formats







Parsing & Standardization: All Data

Product ID		Brand		Description	
90017		iPod		4GB, Red iPod Nano //Special Edt.	
Product_ID	Brand	Size	Color	Description	
90017	IPOD	4GB	Red	4 Gigabyte Nano Special Edition (Red)	

OrgName	CountryCode	Currency
AAVID THERMAL TECH (ATT)		US Dollar

LegalName	ShortName	CountryCode	Currency
Aavid Thermal Technologies Inc.	ATT	US	USD

ContactName	Phone		
Judy Dent // Bob's Assistant	415.555.1212		

FirstName	MiddleName	LastName	Title	Phone
Judy		Dent	Bob's Assistant	+1 (415)555-1212







Address Validation



- Validate or correct addresses for over 240 countries
- Have reference data from international postal agencies
- Validate worldwide data in one environment
- Be continuously maintained with worldwide post offices and databases



Address Validation

Address1	Address2	Address3	Address4	Address5
7887 KATY FRWY	SUITE 333	HUSTEN	TX	99999





Street	City	County	StateCode	StateName	ZIP	ZIP4	Latitude	Longitude
7887 Katy Freeway Suite 333	Houston	Harris	TX	Texas	77024	2005	29.283427	-95.46802

Valid addresses keep costs down and helps ensure compliance







Match and De-Duplicate All Data Types



Using multiple attributes using multiple rule sets

Use confidence levels to automate

Consider over 60 cultural variations for name matching

Match data in spite of poor quality







Match and De-Duplicate All Data Types

SKU	Description	Size	Price
AP-2199	Sailors' Desk Lamp	12 in	27.99
AP2199	Nautical Lamp	12 inch	27.99
PA-2119	Sailoring Lamp	1 Foot	34.99

Intrinsically wrong (and potentially uncorrectable) data can still be valuable for Matching purposes

- Alternate or Nicknames
- Misspellings
- Invalid Data

Name	DOB	Address	City	State	Zip
W. S. Harrison II PhD	1/33/1967	Medical Center,117/2A #17497 Jackson	E. Hartford	NY	16987
William Stuart Harison	1/3/1967	117- 2a Jacksen Rd.	Easthartford	СТ	06987
William Stewart Harison	9/9/99	117 Jackson Road. Suite 2A	Hartford East	СТ	06987
Doctor Bill Harisen jr	1/13/1967	117 Jacson Room 2a	HartfordCT		6984
Harrisen William Doctor		2a Jackson Rd #174978	Hartford	СТ	06987-4573

Highly accurate matching ensures the minimum number of duplicates







Monitoring Quality



Stakeholders need to be aware

- Current quality metrics
- Alerts if quality thresholds are not being met

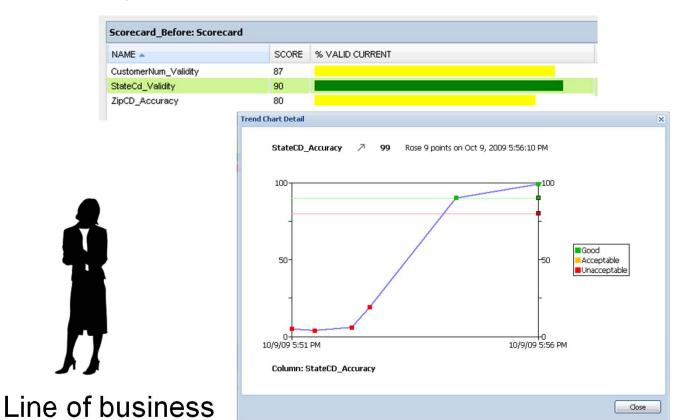
Delivery of reports and alerts must be web based





Monitoring the quality

Easy-to-share browser-based scorecards for line of business managers



- Browser-based scorecards enabling you to:
 - View and share data quality scorecards
 - Drilldown to the actual records
 - Take action to reduce the business impact

Zero learning curve for business users to review and track data quality metrics, enabling data quality "for the masses".

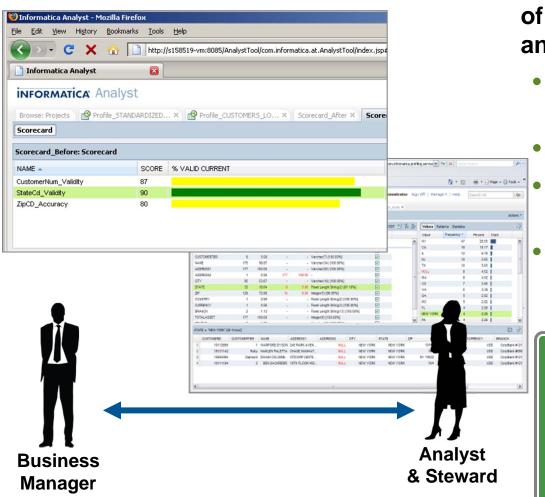


manager





Business Empowerment Simple-to-use browser-based tools



Designed for the tasks and skills of business data stewards and analysts

- Purpose-built, web-based UI for fast ramp-up
- Scorecarding & trending
- View business, not technical, representations
- Interact with data directly through profiling, rule validation, and scorecarding

Work with relevant data to meet business needs while reducing reliance on IT





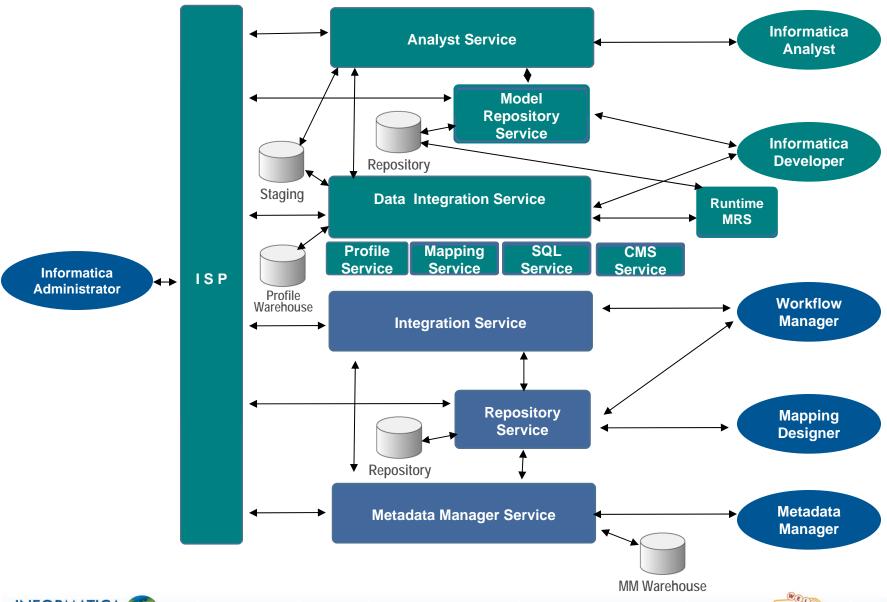


Release 9.1 Architecture Overview

IDQ V9.1



Release 9 DQ Architecture







Model Repository Service (MRS)

Application service that manages the Model Repository

- Model Repository is a relational database that stores the metadata for projects created in the Analyst and Developer Tools
- Stores run-time and configuration information for deployment units that are deployed to a Data Integration Service

Node configuration

- MRS can run on one node but is not a highly available service
- Multiple MRS Services can run on the same node
- If MRS fails, it automatically restarts on the same node







Data Integration Service (DIS)

- Container for all data integration functionalities
- Plug-ins provide different DI functionalities
 - Profiling Service plug-in translates profile into mappings
 - SQL Service plug-in translates SQL into mappings
 - Mapping Service executes data quality plans
- Provides common services to its plug-ins
 - Request dispatch, thread pooling etc.
- Mapping execution using embedded Data Transformation Machine (DTM - Interprets and executes mappings)





Analyst Service (AS)

- Manages the Analyst tool
- Manages the connection to the directory that stores uploaded flat files that are used as flat file sources in the Analyst tool
- Manages the connection to a staging database that stores reference tables that are created or imported in the Analyst tool
- Connects to a DIS and MRS





Content Management Service (CMS)

- Allows central configuration of content related items and provides content information to Informatica Developer.
- CMS contains configuration of Address Validation Parameters
- CMS is requirement for Identity Populations (used in Matching Transformation)





Informatica Services Platform (ISP)

- Administrative Framework for Informatica Services
 - Monitoring, start/stop and failover of services
 - Extensible via plug-ins for additional services
- Supports single point of administration
 - User, groups and role management
 - Service configuration and monitoring
- Integration with LDAP, Active Directory
- Provides a set of core services used internally
 - Authentication Service, Name Services etc.









Informatica Analyst



What is the Analyst 9.1? Product Features/Highlights

Data Sources

- Metadata import for Data Sources
- Data access and preview

RTM (Reference Table Manager)

- Authoring and editing of reference data
- Auditing of changes

Profiling

- Column Profiling
- Rule Profiling
- Rule creation/editing

Data Quality Scorecarding

- Create/Edit from just browser
- Based on profile value frequencies

Collaboration via

- Metadata Bookmarks (URLs)
- Profile Comments
- Bi-directional Sharing of Rules with 9.1 Developer
- Sharing of RTM dictionaries

DQA (Data Quality Assistant)

- Management of Bad Records and Duplicate Records
- Auditing of changes

Mapping Specification

Define business logic that populates a target table

Configure the sources, target, rules, filters, and joins to transform the data





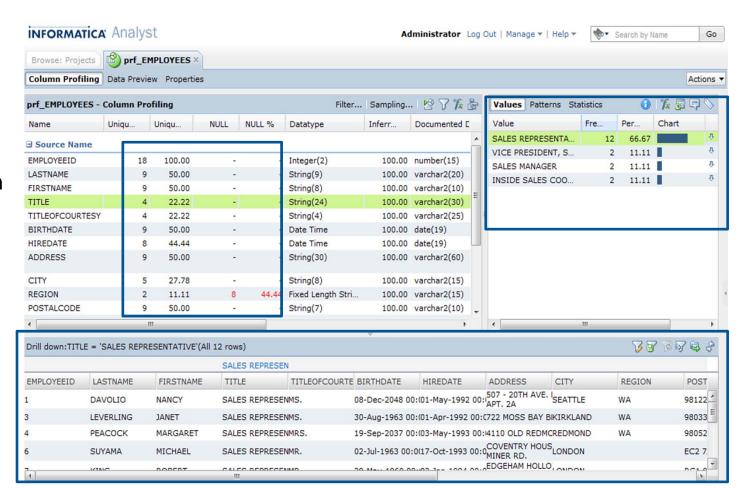


Profiling

View

- Profile Statistics
- Value / Pattern Frequency Analysis

Drilldown Analysis





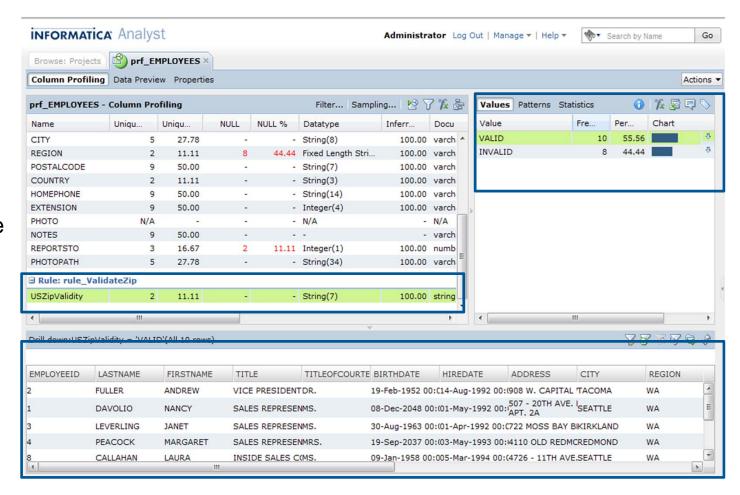




Profiling – Apply Rules

 Apply existing rule or create new one.

 View Profile results for Rule output



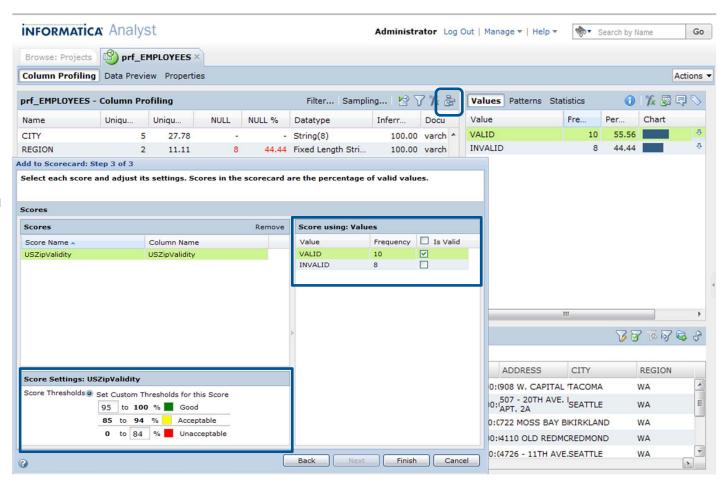






Scorecards

- Add Profile Columns to a Scorecard
- Scorecard
 Name, Location
 Description.
- Set Thresholds



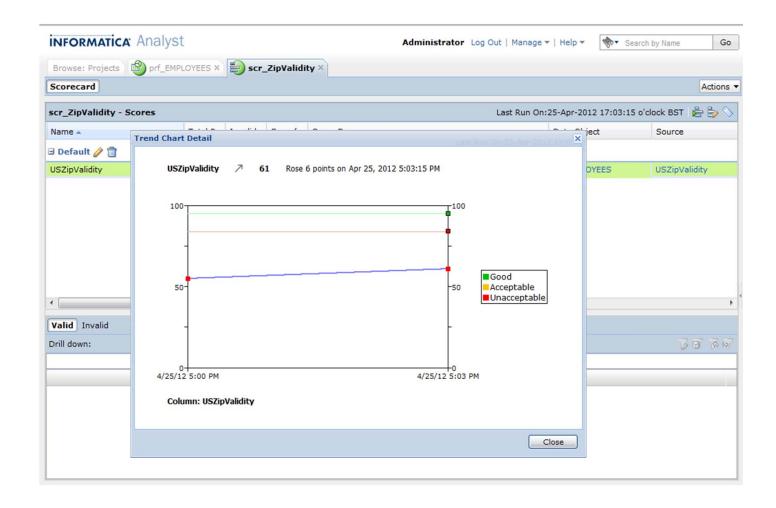






Scorecards

- Run the Scorecard
- View Trend Chart









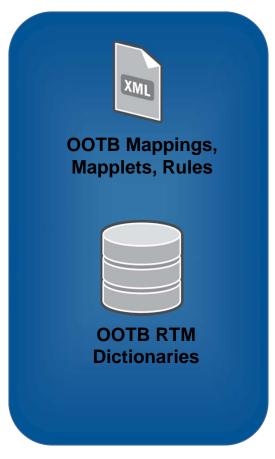


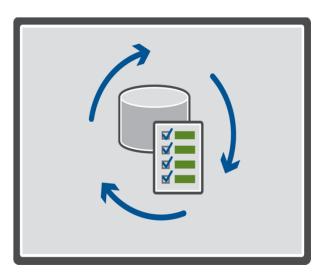
Address Validation Overview



V9 Data Quality Content Packaging

Included in IDQ V9



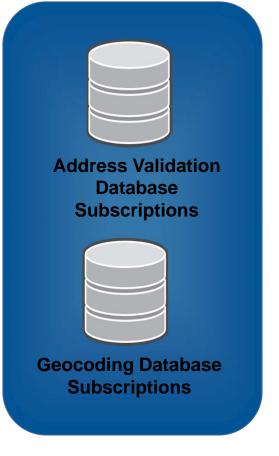


Data Quality 9

Fee-Based Content





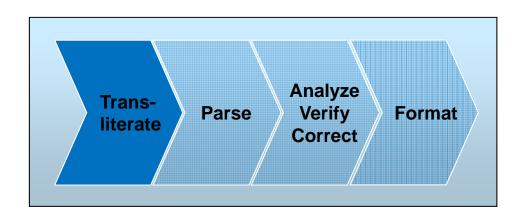


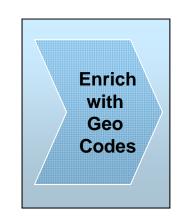






Step 1 - Transliteration





Data input is in a non-Latin alphabet

AΘHNAΣ 63 105 52 AΘHNA GREECE



Data transliterated into Latin Script

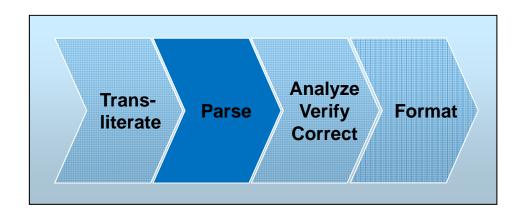
ATHINAS 63 105 52 ATHINA GREECE

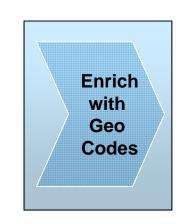






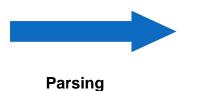
Step 2 – Parsing





Data is unstructured or in incorrect fields

7031 Columbia Gateway Dr Suite 101 Columbia MD 21046 USA



All elements are stored in proper fields

House number: 7031

Street: Columbia Gateway Dr

Sub-Building: Suite 101
City: Columbia

State: MD

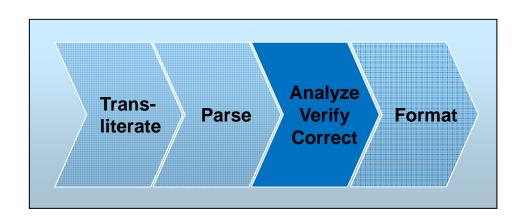
ZIP: 21046 Country: USA

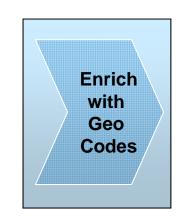






Step 3 – Correction





Incorrect input address

7031 Golumbia Gateway Ave. Suite 101 Columbia MD 21044 USA



Corrected output address

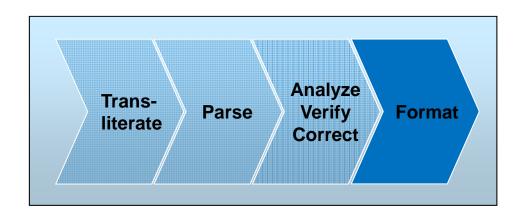
7031 COLUMBIA GATEWAY DR STE 101 COLUMBIA MD 21046 USA

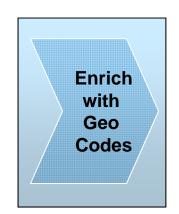






Step 4 - Formatting





Properly formatted addresses for 240+ countries

Micros-Fidelio House 6-8 The Grove Slough SL1 1QP Great Britain Europadamm 2-6 41460 Neuss Germany AΘHNAΣ 63 105 52 AΘHNA GREECE

3440023埼玉県春日部市大枝4-31-18 Japan

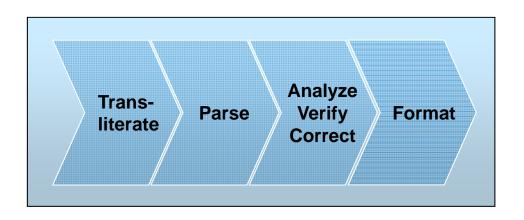
7031 COLUMBIA GATEWAY DR STE 101 COLUMBIA MD 21046 USA

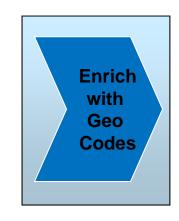






Step 5 – Enrichment





Input address

7031 COLUMBIA GATEWAY DR STE 101 COLUMBIA MD 21046 USA



Geo Coordinates

Latitude: 39.173427 Longitude: -76.801280









Data Quality Matching



Matching – Classic Data Matching

The Match transformation reads values in selected input columns and calculates match scores representing the degrees of similarity between the pairs of values.

Match Strategies:

- Jaro Distance
 - Greatest emphasis on initial characters
- Bigram Distance
 - Longer multi token text strings
- Hamming Distance
 - Numeric, date & code
- Edit Distance
 - Strings of arbitrary length
- Reverse Hamming Distance









Matching – Identity Matching

- Identity Matching delivers next generation linguistic and statistical matching algorithms to ensure highly accurate matching out of the box for over 60 countries
- Identity Matching uses Populations contain key building algorithms that have been developed for specific countries and languages.
 - Rules differ depending on the country/language

Sample Rules

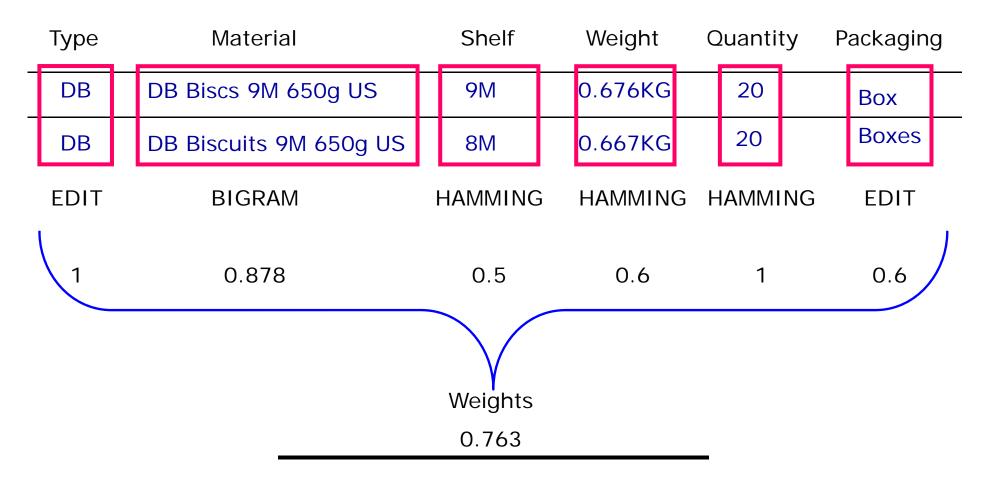
Category Name	Rule Type	Examples		
Noise Word	Word is Deleted	e.g. THE, AND		
Company Word Delete	Word is Deleted	e.g. INC, LTD, CO		
Company Word Skip	Word is marked Skip	e.g. DEPARTMENT, ASSOCIATION		
Personal Title Delete	Word is Deleted	e.g. MR, MRS, DR, JR		
Nickname Replace Diminutives	Word and its Diminutives are Replaced	e.g. CATH(E, IE, Y) => CATHERINE		
Nickname Replace	Word is Replaced	e.g. MIKE => MICHAEL		
Secondary Lookup	Word generates additional search ranges	e.g. AL => ALBERT, ALFRED		







Classic Data Matching – product data



Define the threshold that must be met before records will be output as a possible match





Matching – Classic vs Identity

To the human eye certain names would be an obvious potential match.

However, classic match algorithms give poor results.

Classic Matching
ClusterId Name LinkScore

	ClusterId	Name	LinkScore	ClusterSize	RowId	DriverId	LinkId
1	000000001	Kate Browne	1	4	1 - 1	1 - 4	1 - 1
2	000000001	Catherine Brown	0.5333333333	4	1 - 2	1 - 4	1 - 1
3	000000001	Cathy Browne	0.75	4	1 - 3	1 - 4	1 - 1
4	000000001	Kathleen Brown	0.6428571428	4	1 - 4	1 - 4	1 - 1
-						-	-

The Identity Population rules overcome this limitation without the need to cleanse or standardize data

Identity Matching

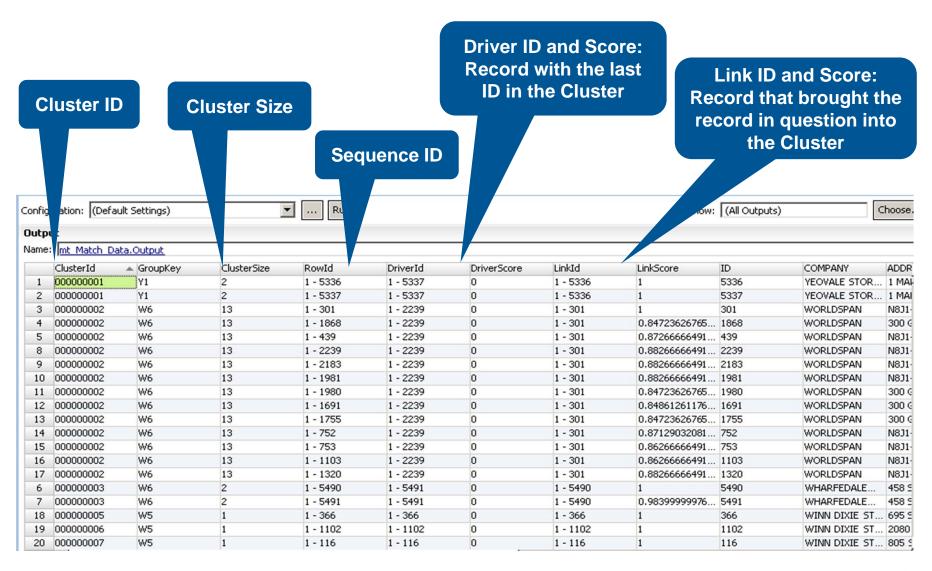
	ClusterId	Name	LinkScore	ClusterSize	RowId	DriverId	LinkId
1	000000001	Kate Browne	1	4	1 - 1	1 - 1	1 - 1
2	000000001	Catherine Brown	0.92	4	1 - 2	1 - 1	1 - 1
3	000000001	Cathy Browne	0.98	4	1 - 3	1 - 1	1 - 1
4	000000001	Kathleen Brown	0.96	4	1 - 4	1 - 1	1 - 2







Sample matching output











PowerCenter Integration



Why Integrate with PowerCenter?

Deployment to PC for

- Performance
- Reliability
 - PowerCenter HA
- Scalability
 - PowerCenter Grid
- Connectivity
- Batch access
- Web Services
- DQ as part of ETL process







IDQ/PC Integration Scenarios New Install

PC Version	9.1	9.0.1	9.0	8.6/8.6.1	
9.1	No separate integration installer	DQ/PC Integration installers on PC side (Client and Server)	Not supported	8.6.1 only DQ/PC Integration installers on PC side (Client and Server)	
9.0.1	Not supported	No separate integration installer.	Not supported	DQ/PC Integration installers on PC side (Client and Server)	
9.0	Not supported	Not supported	No separate integration installer.	DQ/PC Integration installers on PC side (Client and Server)	
8.6.2	Not supported	Not supported	Not supported	DQ/PC Integration installers for both IDQ and PC	







DQ v9.x in PC Upgrade

- When upgrading only IDQ to 9.1:
 - 9.1 PC Integration installers need to be run on PC side to allow DQ 9.1 mappings in PWC 9.0.1 / 8.6.1
- When upgrading PC to 9.1:
 - DQ 9.0/9.0.1 CTs will continue to run
 - Consolidation CTs will NOT be upgraded and will need to be re-exported from IDQ 9.1







IDQ v8.6.2 in PC 8.6 -> 9.1 Upgrade

There are 2 Options

1. Upgrade PowerCenter and apply CRS Upgrade patch.

- Run standard PowerCenter 8.6.x to PowerCenter 9.1 upgrade.
- Apply CRS Upgrade which is required to continue running mappings containing IDQ 8.6.x mapplets post upgrade to PowerCenter 9.x
- Requires 8.6.x Integration libs remain available.

2. Migrate IDQ Plans from 8.6.2 to 9.0.1

- Migration only from IDQ 8.6.2 to PowerCenter 9.0.1. No direct migration to 9.1
- Requires a number of steps
 - Export Data Quality 8.6.2 repository objects and reference data to the file system in XML format.
 - Convert the 8.6.2 repository objects to 9.0.1 format.
 - Import the reference data as reference tables to the 9.0.1 Model repository and staging area





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