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 **District of Columbia Retirement Board**

**(DCRB)**

Request for Proposal for the Implementation of a Data Management Solution

**Solicitation Number: DCRB-14-028**

**Release Date: July 18, 2014**

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# APPENDIX A

## Functional Requirements

The following matrix outlines specific requirements by product for the solution. Requirements are broken out into Business, Functional and Technical requirements. Offerors will complete the following table outlining how their solution meets each requirement according to the legend below. If additional information is necessary for the Offeror to communicate how requirements are met or how the solution delivers the requirement, a comments field has been provided.

|  |  |
| --- | --- |
| Mandatory/Desirable | Pass / Fail Factor for Evaluation |
| Offeror Response | Check the appropriate column using the following key. |
| CC | **Client Configurable**: Requirement is available and can be configured by the client without offeror support or involvement. |
| VC | **Integrator Configurable**: Requirement is available and can be configured by the offeror. |
| M | **Modifiable**: Requirement is available and can be configured by the Integrator, but will require some level of modification.  |
| EE | **Expandable/Extensible**: Software/solution can be easily expanded or extended with a third-party product to meet new requirements |
| C | **Custom:** Requirement is not available and would have to be customized for DCRB. |
| NS | **Not Supported:** Requirement is not supported and will not be modified or expanded to meet the requirement during this project. |
| In Productive Use?  | EnterYes or No. Each requirement must be in production and currently in use by a client.  |
| Comments | Offeror may include a brief statement as to whether it meets or exceeds each requirement; if the response is “**M**” or “**C**”, indicate whether it will meet the required timeline. Include the cost of customization in the Financial Proposal/Pricing Schedule. |

Requirements indicated as Mandatory will be required for the proposal to be accepted. If a Mandatory requirement cannot be met, the proposal will fail the evaluation.

Desirable requirements will be evaluated individually on implementation type (VC, CC, etc.) with a weighted importance of “In Productive Use”.

NOTE: When giving responses, the guidelines below should be followed. A comments column is provided in the spreadsheet for clarification, when necessary.

Offerors are cautioned not to indicate functionality as "included in standard offering" when, in fact, that particular feature is in development. When that is the case, offerors should note that fact in the comments column of the “Data Management RFP Questionnaire for District of Columbia Retirement Board" and indicate the expected date that such a feature will be made available.

| **ESB Requirements** |
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| **ID** | **Requirement** | **Mandatory/****Desirable** | **CC** | **VC** | **M** | **EE** | **C** | **NS** | **In Productive Use?** | **Comments** |
| Business Requirements |
| 1 | Integration with Standard Database Solutions: The solution shall be able to integrate with and leverage current systems such as SQL Server, Oracle, etc. in place at DCRB. | M |  |  |  |  |  |  |  |  |
| 2 | Integration with Standard Application Systems: The solution shall be able to integrate with PeopleSoft, SharePoint, FileNet, and other data warehousing solutions. | M |  |  |  |  |  |  |  |  |
| 3 | Multiple Upload Capabilities: The solution shall provide mechanisms to upload existing data from multiple solutions regardless of the technology platform on which they operate. | M |  |  |  |  |  |  |  |  |
| 4 | Connectivity: Standard Communications Platform: The solution should possess industry standard communication protocols that are agnostic of the output solutions. Data should be input and output for multiple systems regardless of technology or platform (​i.e., web services). | M |  |  |  |  |  |  |  |  |
| 5 | Support: Product end support should be best in class and available 24/7 as part of the solution. | M |  |  |  |  |  |  |  |  |
| 6 | Performance Standards: The solution shall meet the Service Level Agreement (SLA) and other performance standards set by DCRB. | M |  |  |  |  |  |  |  |  |
| Functional Requirements |
| 7 | Connectivity: Relational Databases: The solution shall connect to data stored in relational database management systems. Specifically, the solution must connect to Microsoft SQL Server (2014, 2012, and 2008 R2) and Oracle 11g. | M |  |  |  |  |  |  |  |  |
| 8 | Connectivity: Flat File Formats: The solution shall connect to a variety of delimited flat files such as .csv, .txt, or .xls, as well as XML and JSON formats. | M |  |  |  |  |  |  |  |  |
| 9 | Connectivity: Emergent Data Types/ Semi-Structured Data: The solution shall connect to data stored in non-traditional source types, such as web sites, Microsoft Office productivity tools, and content repositories such as FileNet 5.1, SharePoint 2013, Tamale RMS, Dynamics GP, and other tools used by the agency. | M |  |  |  |  |  |  |  |  |
| 10 | Connectivity: Multiple Protocols & Data Structures: The solution shall connect to data stored in SOAP, REST, WSDL, and UDDI structures and any other industry standard formats. | M |  |  |  |  |  |  |  |  |
| 11 | Communication: Solution must have a platform that establishes an interoperability layer that supports interactions among components via a variety of protocols (HTTP/HTTPS, XML, SOAP, Internet Inter-ORB Protocol [IIOP], .NET remoting, message-oriented middleware [MOM] protocols, file transfer protocols [FTP/SFTP], JMS/MQ, RDBMS, REST, WSDL, UDDI, etc.) and interaction styles (request/reply, conversational, publish and subscribe, asynchronous messaging, etc.). | M |  |  |  |  |  |  |  |  |
| 12 | Mediation: The solution must have features that enable in-flight message manipulation, such as transformation (typically XML-based), intelligent routing, naming and addressing, and dynamic service virtualization. | M |  |  |  |  |  |  |  |  |
| 13 | Orchestration: The solution shall support designing the service interfaces, the rules (transformation, routing), the orchestration (virtualization flows), and the adapter configurations required to implement services. | M |  |  |  |  |  |  |  |  |
| 14 | Exchange Integration: The solution shall access and extract data from email messages and their attachments from a Microsoft Exchange Server environment. Data stored in attachment may include semi-structured data such as flat file, XML, and JSON formats. | M |  |  |  |  |  |  |  |  |
| 15 | ​Management, Administration, Monitoring, and Control: The proposed solution must have the functionality to assist operations personnel in keeping the resultant system (applications, services, and infrastructure) running at peak efficiency at all times. | M |  |  |  |  |  |  |  |  |
| 16 | ​Management, Administration, Monitoring, and Control: The proposed solution must support access and control for information exchange and provide support of business applications to enforce access controls. | M |  |  |  |  |  |  |  |  |
| 17 | Management, Administration, Monitoring and Control: The proposed solution must support error handling, provide capability to send alerts to notify team members of failed processes, and possess ability to send alerts based on non-receipt of files or messages. | M |  |  |  |  |  |  |  |  |
| 18 | Security Solutions: The solution shall meet industry, NIST, and FIPS security standards as required. | M |  |  |  |  |  |  |  |  |
| 19 | Connectivity: Legacy and Non-Relational Databases: The system shall provide interface connections for legacy and non-relational database systems. | D |  |  |  |  |  |  |  |  |
| 20 | Adapters: The proposed solution should have the technology that combines design tools and runtime software to implement programs such as transforming among protocols, connecting to any data source, technology (messaging, databases, etc.), applications, or trading partner through a unified connectivity framework and linking pre-SOA ease and power-packaged composite applications and packaged APIs to the SOA backplane using industry standards, packaged application adapters, legacy adapters, technology adapters, and adapter development integrating processes. | D |  |  |  |  |  |  |  |  |
| 21 | Advanced Semantic Transformation: The solution must have the ability to perform syntactic and semantic hub-based transformation of messages. | D |  |  |  |  |  |  |  |  |
| 22 | File Formats: The proposed solution must provide the ability to handle multiple document formats—scanned images, PDF, XML, CSV. etc. | D |  |  |  |  |  |  |  |  |
| 23 | Advanced Semantic Transformation: The proposed solution shall have infrastructure tooling that enables users to represent semantic models, identify model-to-model relationships, and execute the necessary translations to reconcile data with differing semantic models. | D |  |  |  |  |  |  |  |  |
| 24 | ​Management, Administration, Monitoring, and Control: The proposed solution must provide for performance monitoring tools that can be used with the product (built-in or third party). | D |  |  |  |  |  |  |  |  |
| 25 | ​Management, Administration, Monitoring, and Control: The proposed solution must be widely compatible with existing applications and operating environments. | D |  |  |  |  |  |  |  |  |
| 26 | ​Management, Administration, Monitoring, and Control: The proposed solution must provide the ability to monitor external interfaces as well as interfaces built on the ESB for responsiveness, queuing issues, etc. The ESB should be able to generate alerts if deviations from specified parameters are detected. | D |  |  |  |  |  |  |  |  |
| 27 | ​Management, Administration, Monitoring, and Control: The proposed solution shall provide a simulation engine or tool that identifies potential process bottlenecks before a process is deployed. | D |  |  |  |  |  |  |  |  |
| Technical Requirements |
| 23 | Connectivity: Bi-Directional Interface Modalities: The solution shall support common bi-directional interface modalities including generic web services or APIs. | M |  |  |  |  |  |  |  |  |
| 24 | Data Extracts: The solution shall provide data extracts in multiple formats such as Excel, XML, flat file, CSV, CD, or DVD to support audit and reporting requirements. | M |  |  |  |  |  |  |  |  |
| 25 | Support of Industry Standard Data Formats: The solution shall support the current version of XML, CSV, REST, and other industry standard data formats. | M |  |  |  |  |  |  |  |  |
| 26 | Web Services: The solution must support a distributed computer environment (Web Services, API). | M |  |  |  |  |  |  |  |  |
| 27 | Security: The proposed solution must clearly articulate how the solution will provide maximum security for the users and transactions involved through the following: authentication, authorization, encryption/encryption, digital signatures, credential mapping | M |  |  |  |  |  |  |  |  |
| 28 | Architecture & Technology & Scalability: The proposed solution must have the potential to be scaled in the future so that additional resources could be acquired and attached to the system easily allowing other systems to integrate. | M |  |  |  |  |  |  |  |  |
| 29 | Architecture, Technology, and Scalability: The proposed architecture must be scalable and must provide a minimum of 99.999% ESB server availability. Options and recommendations for measuring and reporting on availability as defined are encouraged. | M |  |  |  |  |  |  |  |  |
| 30 | Queuing: The system should enable for message/data queuing in the event that a receiving system is down or network connectivity errors exist.  | M |  |  |  |  |  |  |  |  |
| 31 | Communication: The solution must have a messaging platform that enables communication among applications via the reliable delivery of messages. | M |  |  |  |  |  |  |  |  |
| 32 | Architecture, Technology, Scalability: The proposed architecture must include separate development, test, and production environments. | M |  |  |  |  |  |  |  |  |
| 33 | Architecture: The proposed architecture must achieve DCRB integration via web-based technologies that, at a minimum, include the following architectural components: connectivity, data access and control, security, confidentiality, management and control, and networking.  | M |  |  |  |  |  |  |  |  |
| 34 | Security: Encryption Standard: The proposed solution must ensure that all DCRB network data crossing over a public network segment or Internet connections includes at least 128 bit encryption using FIPS 140-2 compliant modules. The solution must be capable of using cryptographic modules that are compliant with Federal Information Processing System (FIPS). | M |  |  |  |  |  |  |  |  |
| 35 | Security: Encryption: The proposed solution must incorporate secure data exchange mechanisms and technologies such as cryptography, key management, access control, authentication, and data integrity where appropriate. | M |  |  |  |  |  |  |  |  |
| 36 | Security: Authentication: The proposed solution must provide the ability to authenticate users and messages with AD/LDAP or ID provider. | M |  |  |  |  |  |  |  |  |
| 37 | Security: The offeror shall propose implementation of web services security standard and must clearly articulate the standard, which components of the standard will be implemented, and how each component fulfills a technological or business requirement identified by DCRB. | M |  |  |  |  |  |  |  |  |
| 38 | Security: The proposed solution shall provide the tools and technologies required to implement the necessary authentication and authorization to control. | M |  |  |  |  |  |  |  |  |
| 39 | Architecture: The proposed architecture must flexibly adapt to, integrate, and use ever-evolving policies, best practices, and operating procedures from the agency's integration participants (EDQ/MDM). | D |  |  |  |  |  |  |  |  |
| 40 | Adapters: The solution must provide the ability to create adapter services with coding tools. | D |  |  |  |  |  |  |  |  |
| 41 | Connectivity: Web Services: The proposed solution must include request/reply, publish/subscribe, and synchronous/asynchronous functionality to facilitate the information sharing between DCRB systems and applications including other entities and the ESB. | D |  |  |  |  |  |  |  |  |
| 42 | Security: The security included in the proposed solution must be scalable and capable of being configured to accommodate different levels of security on a per user, application, or endpoint basis. | D |  |  |  |  |  |  |  |  |

| **EDQ Requirements** |
| --- |
| **ID** | **Requirement** | **Mandatory** | **CC** | **VC** | **M** | **EE** | **C** | **NS** | **In Productive Use?** | **Comments** |
| Business Requirements |
| 43 | Standardize and De-Duplicate Data: The solution shall be able to standardize and de-duplicate data across multiple solutions regardless of the data. | M |  |  |  |  |  |  |  |  |
| 44 | Support: Product end support should be best in class and available 24/7 as part of the solution. | M |  |  |  |  |  |  |  |  |
| 45 | Performance Standards: The solution shall meet the Service Level Agreement (SLA) and other performance standards set by DCRB. | M |  |  |  |  |  |  |  |  |
| Functional Requirements |
| 46 | SSN: The solution shall be configurable for a quality check on Social Security Numbers (SSN) to ensure both the format and veracity of the data (e.g., 000-00-000). | M |  |  |  |  |  |  |  |  |
| 47 | SSN: The solution shall cross reference and validate unique SSN against Berwyn datastore (or other validation source) and master data record. | M |  |  |  |  |  |  |  |  |
| 47 | Profiling: Profiling of Data External to Sources: The solution shall have the ability to profile data external to existing databases by importing the data into the tool. | M |  |  |  |  |  |  |  |  |
| 48 | Profiling: Column-Based Analyses: The solution shall provide the ability to analyze pre-built patterns for individual attributes, columns, and fields. The analysis should include 1) general functions such as min, max, frequency distributions of value, and patterns; 2) specific functions for common attributes like SSN, e-mail address, phone number, part numbers, dates, city, postal code, and more; and 3) indicators on the selected column, such as number of nulls, row counts, duplicate counts, blank counts, summary statistics, pattern matching indicators, etc. | M |  |  |  |  |  |  |  |  |
| 49 | Profiling: Data Quality Thresholds: The solution shall allow users to define expected thresholds for data, including minimum/maximum values, dates, or lengths. Trend analysis should be able to identify outliers within the data. | M |  |  |  |  |  |  |  |  |
| 50 | Manual Override: The solution shall provide manual override for authorized users to resolve improper matches (and mismatches) and to preserve the override for that data record for future use. | M |  |  |  |  |  |  |  |  |
| 51 | Bulk Processing: The solution shall provide mechanisms for bulk processing of issues similar to the manual override requirement. | M |  |  |  |  |  |  |  |  |
| 52 | Profiling: Dependency Analyses: The solution shall provide the ability to perform a range of pre-built analyses to identify relationships, patterns, integrity gaps, and duplication between and across multiple attributes, fields, tables, databases, and files. | M |  |  |  |  |  |  |  |  |
| 53 | Profiling: Redundancy Analysis: The solution shall provide the ability to compare the data of two sets of columns. The analysis will be used to verify foreign key/primary key relationships or to compare the content of two tables. Preferably, the system will enable redundancy analysis across multiple database systems. | M |  |  |  |  |  |  |  |  |
| 54 | Processing: Real-Time or Batch: The solution shall facilitate the extraction and validation of data through a batch system or on a real-time basis.  | M |  |  |  |  |  |  |  |  |
| 55 | Parsing: The system shall have pre-built functionality for the decomposition of textual data. | M |  |  |  |  |  |  |  |  |
| 56 | Parsing: Delimiter Parsing: The solution shall provide the ability to split text fields based on delimiters, such as tabs, spaces, and commas. | M |  |  |  |  |  |  |  |  |
| 57 | Parsing: Name Parsing: The solution shall parse names, determine gender, and detect vulgar words. The solution shall be able to parse full, dual, inverse, and mixed full name. | M |  |  |  |  |  |  |  |  |
| 58 | Parsing: Customized Parsing: The system shall allow for facilities that configure user-defined parsing rules. | M |  |  |  |  |  |  |  |  |
| 59 | Matching: Linking "Households": The system shall have the ability to create logical groups of records by relating those with user-determined properties. | M |  |  |  |  |  |  |  |  |
| 60 | Matching: Removing Duplicates/De-Duplication: The system shall provide automatic removal of duplicate records based on rules for determining survivorship. The identification of semantic duplicates in a rules-based process that enables an end user to determine what constitutes a match and perform de-duplication will also be provided. | M |  |  |  |  |  |  |  |  |
| 61 | Matching: Merge Records: The system shall have facilities for implementing and customizing rules by which duplicate or related records can be merged into a single "survivor." The final record can take the best parts of all related records to form an optimal best-of-breed record. | M |  |  |  |  |  |  |  |  |
| 62 | Matching: Fuzzy De-Duplication: ​The system must be able to create a database with only unique records, leveraging fuzzy matching algorithms. | M |  |  |  |  |  |  |  |  |
| 63 | Resolving Conflict: The system should enable users to fill in missing data and resolve other data quality issues. | M |  |  |  |  |  |  |  |  |
| 64 | Metadata: The system should have the ability to capture, reconcile, and interoperate metadata relating to the data quality process. | M |  |  |  |  |  |  |  |  |
| 65 | Metadata: User Interface: The system must provide business analyst/end-user interfaces that view and work with metadata. | M |  |  |  |  |  |  |  |  |
| 66 | Data Cleansing: Interval Matching: The system will look for number of outliers in the number of times items appear in an attribute. | M |  |  |  |  |  |  |  |  |
| 67 | Threshold: The solution will use thresholds for matching and will identify records that are matches, records that are unique, and records that need manual inspection to determine match status. | M |  |  |  |  |  |  |  |  |
| 68 | Data Duplication Systems: The system must recognize duplicate records and provide a facility for identifying, merging, or resolving duplicates before they are accepted into the system. | M |  |  |  |  |  |  |  |  |
| 69 | Address Validation/Geocoding: The system must cleanse common address attributes like name, address, state, city, and postal code using included patterns and reference data. The system should leverage any trusted source to standardize and enrich data. | M |  |  |  |  |  |  |  |  |
| 70 | Libraries: The system must provide validation libraries certified by relevant authorities such as the U.S. Post Office. | M |  |  |  |  |  |  |  |  |
| 71 | Library Updates: The system will provide a mechanism by which updates to all validation libraries are delivered and applied. | M |  |  |  |  |  |  |  |  |
| 72 | Address Parsing: The system will parse unstructured and structured address data, will standardize address elements, will format postal addresses, and will facilitate the process of address validation. | M |  |  |  |  |  |  |  |  |
| 73 | Event Logging: The system must have complete event tracking for all events including user name, date, and time. | M |  |  |  |  |  |  |  |  |
| 74 | Console: The system should have a multi-user interface capable of managing scheduled jobs, activating unscheduled tasks, monitoring and reporting on current tasks, and leveraging performance reporting for metrics. | M |  |  |  |  |  |  |  |  |
| 75 | Staged Data: The solution should use a staged database system so that changes can be backed out when an issue is identified. | M |  |  |  |  |  |  |  |  |
| 76 | PII (Personally Identifiable Information): The solution should automatically recognize, protect, and log PII data, changes, views, etc. | M |  |  |  |  |  |  |  |  |
| 77 | Matching: Knowledge Base: The system shall have the ability to interpret the meaning of text fields based upon the matching of characters strings against a knowledge base. In addition, the system shall have the ability to customize that knowledge. | M |  |  |  |  |  |  |  |  |
| 78 | Security Solution: The solution shall meet industry, NIST, and FIPS security standards as required. | M |  |  |  |  |  |  |  |  |
| 79 | Data Validation: The system needs to be able to sample data in fields ensuring that each field is not contaminated by integration efforts. | D |  |  |  |  |  |  |  |  |
| 80 | Threshold Tolerance Limits: The solution will enable users to modulate the sensitivity of matching algorithms by assigning weights. | D |  |  |  |  |  |  |  |  |
| 81 | Profiling: In-Place Profiling and Cleansing: The solution shall provide the ability to profile data in existing databases without the need to extract, move the data, or create a repository of results. | D |  |  |  |  |  |  |  |  |
| 82 | Profiling: Scheduled/Batch Execution: The solution shall provide the ability to schedule profiling or cleansing processes to occur at any given interval or when a file is received by the ESB. | D |  |  |  |  |  |  |  |  |
| 83 | Profiling: Drill Down into Data: The solution shall provide the ability for users to drill down into individual data sources and view specific records using a data viewer tool. | D |  |  |  |  |  |  |  |  |
| 84 | Profiling: Historic Analyses: The solution shall store the results of a data profiling analysis in a data repository so that the history of data quality can be viewed and the improvement or degradation in data quality can be tracked.  | D |  |  |  |  |  |  |  |  |
| 85 | Profiling: In-Place Profiling and Cleansing: The solution shall provide the ability to profile data in existing databases without the need to extract the data, move the data, or create a repository of results. | D |  |  |  |  |  |  |  |  |
| 86 | Pattern Matching: The solution shall ensure that data conforms to specific shapes and patterns. | D |  |  |  |  |  |  |  |  |
| 87 | Parsing: Knowledge Base Creation and Maintenance: The system shall provide facilities for adding to or customizing terms in packaged knowledge bases and shall provide the ability to create new knowledge bases. | D |  |  |  |  |  |  |  |  |
| 88 | Matching: Relationship Identification: The system shall provide functionality for the configuration and execution of rules and schemes to identify related data entities. | D |  |  |  |  |  |  |  |  |
| 89 | Matching: Tune and Weight Matching: The system shall provide the ability to weight, prioritize, and tune matching rules (for example, to optimize the frequency and number of potential matches or the "tightness" or "looseness" of matching) so that one attribute may have more priority over another in any given record. | D |  |  |  |  |  |  |  |  |
| 90 | Matching: Matching Types: The system shall use probabilistic, deterministic, and custom algorithms for finding, matching, merging, linking, and deleting relationships and duplicates within the data​. | D |  |  |  |  |  |  |  |  |
| 91 | Matching: Performance Matching: The solution should provide strategies for matching very large data sets using techniques such as blocking keys (AKA bucketing or pre-matching). The product should provide tools for setting up and activating these techniques. ​ | D |  |  |  |  |  |  |  |  |
| 92 | Data Stewardship: Role-Based Task Resolution: The solution should assign tasks to a cross-functional team to help mitigate match results or address specific records that do not comply with data quality rules.​ | D |  |  |  |  |  |  |  |  |
| 93 | Data Stewardship: Assigning Tasks: The system should enable administrators to assign tasks to a cross-functional team. | D |  |  |  |  |  |  |  |  |
| 94 | Console Application: Resolve Conflict: The system should provide a data steward console for resolving data conflicts and entering missing data elements. | D |  |  |  |  |  |  |  |  |
| 95 | Console Application: Resolve Matching Records: The system should enable users to visually review whether two records match if there is uncertainty in the matching algorithms. | D |  |  |  |  |  |  |  |  |
| 96 | Console: Web Accessible: The system should support a cross-functional team with an easy-to-use web-based work environment. | D |  |  |  |  |  |  |  |  |
| 97 | Common Metadata: The system should offer an open metadata repository shared across all data sources. | D |  |  |  |  |  |  |  |  |
| 98 | Metadata Synchronization: The system must offer automated bi-directional synchronization of metadata across multiple instances of the tools and data sources. | D |  |  |  |  |  |  |  |  |
| 99 | Metadata Discovery: The system shall provide automated discovery and acquisition of metadata from various data sources, applications, and other tools. | D |  |  |  |  |  |  |  |  |
| 100 | Postal Address Details: The solution must provide support for address extensions (such as the U.S. Postal Service's ZIP+4 code look-up service), change of address notification, and delivery-point validation. The solution must use address, ZIP code, and state to verify or supplement missing ZIP codes and postal codes. The solution must also check and format individual addresses.  | D |  |  |  |  |  |  |  |  |
| 101 | Third Party Libraries: The solution must leverage third-party address validation integrators to check addresses and validate them for postal discounts. | D |  |  |  |  |  |  |  |  |
| 102 | Data Integration Automation: The system will obtain, cleanse, and deliver data in any latency or mode (e.g., federated SQL, web services, messaging, event-based alerts, and ETL) depending on the application’s requirements. | D |  |  |  |  |  |  |  |  |
| 103 | Case Management: The system will provide a case management approach to data cleansing that will facilitate multi-select assignments, disallow assignment to users without case/alert permission, support multiple links in a single attribute, support links in comments, permit control to view alerts, import and export filters, and provide quick option to delete all cases. | D |  |  |  |  |  |  |  |  |
| 104 | Dashboard: The system should have a dashboard system that can be customized for data sets that show trend analysis and error reporting. The dashboard should be easily configurable without requiring external programming. | D |  |  |  |  |  |  |  |  |
| 105 | Parsing: Third-Party Tools: The system shall have the ability to perform parsing operations using knowledge bases from third-party sources. | D |  |  |  |  |  |  |  |  |
| Technical Requirements |
| 106 | Matching by Character String: The solution shall provide the ability to split text fields by matching character strings against packaged knowledge bases of terms, names, and more. | M |  |  |  |  |  |  |  |  |

| **MDM Requirements** |
| --- |
| **ID** | **Requirement** | **Mandatory** | **CC** | **VC** | **M** | **EE** | **C** | **NS** | **In Productive Use?** | **Comments** |
| Business Requirements |
| 107 | Data Consolidation: The solution shall be able to consolidate data across multiple solutions that will include data feeds, data management applications, and other solutions it connects to and will provide a single view of data records. | M |  |  |  |  |  |  |  |  |
| 108 | Search: The solution shall be able to provide simple search and identification of data records. | M |  |  |  |  |  |  |  |  |
| 109 | Probabilistic and Partial Search: The solution shall identify data records through probabilistic and partial search mechanisms with a toolset of solution rules and data-based rules set by DCRB. | D |  |  |  |  |  |  |  |  |
| 110 | Match Thresholds: The solution shall allow the setting of match thresholds by source and use​. | D |  |  |  |  |  |  |  |  |
| 111 | Security: The solution shall support IP range, role-based AD, and agency-based security access to the data. | M |  |  |  |  |  |  |  |  |
| 112 | Resolution of Data Discrepancies: The solution shall be able to resolve data discrepancies in the data received across multiple solutions based on the rule set that has been defined. | D |  |  |  |  |  |  |  |  |
| 113 | Data Management: The solution shall be able to manage the data through effective and efficient: • data collection, • data aggregation, • data matching,• data transformation and standardization,• data checking (QA),• data storing, and• data sharing. | D |  |  |  |  |  |  |  |  |
| 114 | Manual Override: The solution shall provide manual override for authorized users to resolve improper matches (and mismatches) and to preserve the override for that data record for future use. | M |  |  |  |  |  |  |  |  |
| 115 | Bulk Processing: The solution shall provide mechanisms for bulk processing of issues similar to the manual override requirement. | D |  |  |  |  |  |  |  |  |
| 116 | Support Data Standards:- The solution shall support data standards such as Web Services, XML, CSV, TIPS, and any possible Federal standards that may be required. | D |  |  |  |  |  |  |  |  |
| 117 | Synchronize Deltas: The solution shall synchronize with the changes that happen to any of the data records on any of the participating solutions through both batch and real-time mechanisms. | D |  |  |  |  |  |  |  |  |
| 118 | Auditing: The solution shall provide an audit log [who, what, where, when, and why] of all manual updates to data. | M |  |  |  |  |  |  |  |  |
| 119 | Traceable Audit Mechanisms: The solution shall have an auditing mechanism to log and record the source of each activity related to the data including the distinct records that were used to arrive at the master record. | M |  |  |  |  |  |  |  |  |
| 120 | Historical Data Management: The solution shall maintain both an historical record of all derived master records and associated detailed records. | M |  |  |  |  |  |  |  |  |
| 121 | Consolidation to Master Record: The solution shall be able to resolve to one single record through multiple unique identifiers from different solutions.​ | M |  |  |  |  |  |  |  |  |
| 122 | Fraud Detection: The solution shall be able to provide fraud detection mechanisms. | D |  |  |  |  |  |  |  |  |
| 123 | Data Flow: The solution shall provide a workflow analysis and diagram for each tool to demonstrate how the tool will be used and the interaction points for additional tools. | D |  |  |  |  |  |  |  |  |
| Functional Requirements |
| 124 | Support: Product end support should be best in class and available 24/7 as part of the solution. The SLA should be quantitatively proven and must be established to ensure that minimum acceptable standards are met. | M |  |  |  |  |  |  |  |  |
| 125 | PII (Personally Identifiable Information): The solution should automatically recognize and protect PII data. It should also capture audit logs for PII data that has been viewed, modified, and deleted. | M |  |  |  |  |  |  |  |  |
| Technical Requirements |
| 126 | Service BUS Interface: The solution shall have a Service Oriented Architecture (SOA) that interfaces with a Service Bus by receiving and transmitting data through XML. | M |  |  |  |  |  |  |  |  |
| 127 | Modular Services: The solution shall have modular and reusable services and components. | D |  |  |  |  |  |  |  |  |
| 128 | Flexible Architecture: The solution shall have a flexible architecture that can easily incorporate changes (modify and create datasets quickly) and new features. | D |  |  |  |  |  |  |  |  |
| 129 | Performance Standards: The solution shall meet the Service Level Agreement (SLA) and other performance standards set by DCRB. | M |  |  |  |  |  |  |  |  |
| 130 | Security Solutions: The solution shall meet industry, NIST, and FIPS security standards as required. | M |  |  |  |  |  |  |  |  |
| 131 | Integration with EDQ: The solution shall be easily and seamlessly integrated with an ESB, EDQ engine, data warehousing, and other solutions that are a part of the DCRB enterprise architecture. | M |  |  |  |  |  |  |  |  |
| 132 | Scalability: The system will meet scalability standards for both data size as well as demand for data.  | M |  |  |  |  |  |  |  |  |
| 133 | Maximum Uptime: The solution should leverage a base operating system (OS) that maximizes up-time and enables a scalable solution with multiple internal and external resources. Servers should enable isolation from other network devices and should provide a high security level to protect the PII information contained within. | M |  |  |  |  |  |  |  |  |
| 134 | System Support: The solution should be supportable through DCRB's internal technical support organization and should not require re-training of personnel beyond the tool; although, additional expertise may be required for the specific product line. | D |  |  |  |  |  |  |  |  |
| 135 | OS: If multiple OSs are supported, a preferred, optimal OS should be recommended and be capable of integrating with DCRB's current environment. | M |  |  |  |  |  |  |  |  |
| 136 | Enterprise Class: Because of the vital nature of the information constrained in this system, the solution must be enterprise-class capable of supporting millions of transactions on a daily basis regardless of the current user set. | M |  |  |  |  |  |  |  |  |

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