



**Unity Programme**

**UK MDM Release 4**

**MDM and Ensura Integration**

**(Batch & RealTime)**

**Technical Design**

**Version 1.5**

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**Document Maintenance**

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| 1.5 | 19/12/2016 | Rajesh Srinivasulu | Incorporated review comments from Mark Buck for CR241.  Refer section 2.5 for update. |

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**Document Approval**

Virtusa Corporation and HomeServe have reviewed this document and hereby agree that the contents herein are accurate. Any changes to this document must be communicated in writing and signed-off by both parties.

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# Introduction

## MDM Platform Overview

Master Data Management (MDM) comprises the processes, governance, policies, standards and tools that consistently define and manage the critical data of an organization to provide a single point of reference.

In Homeserve, the strategic platform needs a MDM system to consolidate the customer/prospect information from various source systems for operational and marketing use. The following diagram outlines the overall MDM Platform architecture.



**Ensura Bach Integration:**

Ensura source system will send the files (Customer/Address/Policy/Decode). Through batch these files will be loaded into Staging area and then Data validation/Cleansing/Address validation apply on data, after that matching and survivorship golden record will generate and data will be loaded into corresponding MDM tables.

**Ensura Real-Time Integration:**

In Release 4 Ensura uses MDM “CreateParty” and “UpdateParty“ realtime services to send Customer, Address, Policy and Asset details to MDM via SOAP requests. MDM Services captures these requests and loads the data into Staging area and then Data validation/Cleansing/Address validation (Capscan Realtime) apply on data, after that matching and survivorship golden record will generate and data will be loaded into corresponding MDM tables.

Source systems PEGA/Ensura are integrated with MDM in real-time as part of Unity Release 4. MDM real time services details will be covered in Real time Design document.

## Objective

The scope of this Technical Design is to cover batch and realtime integration of Ensura system (Core customer details) with MDM Platform.

The key objectives of this Technical Design are to cover the following items:

1. Business rules (Cleansing/Matching/Survivorship) used to ensure MDM data quality.
2. MDM Data model changes to integrate the Ensura data
3. Details about the Technical components – Data Cleansing and Standardization (Email, Telephone, Address and Customer Name), Matching (De-duplication) and Survivorship module to support the construction phase.
4. Mapping specifications for all technical components
5. Non-functional design

This Technical Design will be subject to review and will subsequently be used as the basis of low level design (if required) during construction phase.

## Distribution List

Approval List

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| **Name** | **Organization** | **Role** |
| Mark Buck | Homeserve | Integration Architect |
|  |  |  |
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|  |  |  |

Discussion / Review List

In addition to those on the approval list above comments will be sought from the following people/groups.

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Governance

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| **Name** | **Applicable?** | **Approval Details** |
| Technical Design Authority (TDA) | Y |  |
| Business Design Authority (BDA) | Y | Only Section 2.1 (Ensura BRD) and 2.4.1 (MDM Business Rules) |

## Glossary

|  |  |
| --- | --- |
| **Term** | **Definition** |
| MDM | Master Data Management |
| ETL | Extraction Transformation and Load |
| XML | eXtended Markup Language |
| WSDL | Web Services Description Language |
| SAM | Service Activity Monitoring |
| TAC | Talend Administrator Centre |
| NRT | Near RealTime |
| BBDM | Back Book Data Migration |

# Technical Design

## Requirements Overview

* Integrate the core customer details for Auto Import and Auto Renewal from Ensura to MDM
  + Data load (active policy base and associated customer and address details)
  + Daily incremental data load (changed records from customer/address/policy/ assets)

Refer Appendix Section 6.1 - BRD covers the above requirements in detail.

* One-off reconciliation for the new additional Entities/attributes in MDM
* Derived Requirement – Match Ensura customer details with customer details present in the MDM Repository
* Ensura Realtime Integration Implementation. This approach schedules a job/process to load customer data coming from MDM Services for every 5min.

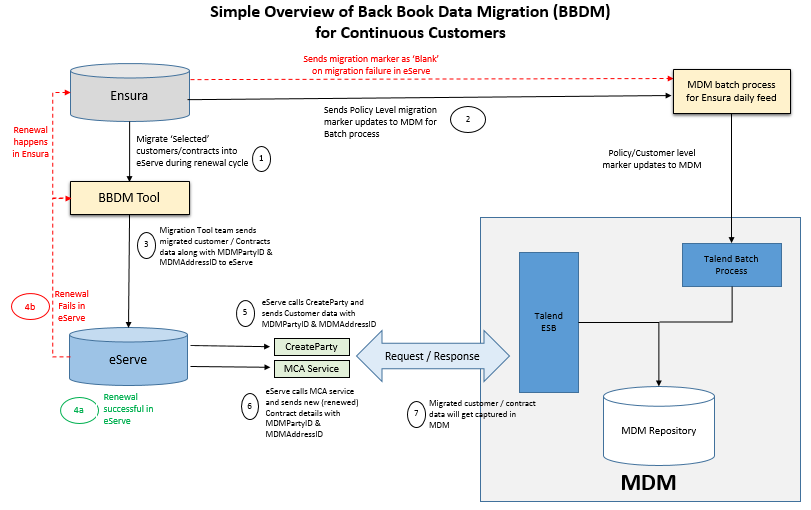
**Release 6, Sprint 4:**

Below changes done to the MDM Services as a part of BBDM CR241.

***CR241 - Change Description:***

* **Include MDM Party ID in the Create Party Service.** When data is passed to eServe, as part of the Data Migration Solution, it should include the MDM Party ID (if available; i.e. optionally) for the customer. Once the Create Party Service has successfully created the record (as part of the Migration Execute Sale), it should pass the MDM Party ID back to MDM so to enable MDM to “link” the Ensura records with the eServe records in MDM. Irrespective of whether a Contract or Quote is created as part of the migration, solution should attempt to link Ensura and eServe records in MDM.
* **Add Migration Flag in Party (Customer) and Contract entities in MDM and manage values for them rules based on the business rules.** MDM should capture migration level markers from Ensura system for the contracts and customers which create a provision that can be used by external systems to determine where in the migration process a customer/policy is (from Ensura to eServe).

Refer [section 6.7](#_BBDM_CR241_related) for all the artifacts related to this CR.



## High level Dataflow

The following diagram provides high level data flow between Ensura and MDM database.



***High Level Process (Illustration Only):***

* In Batch Integration Ensura will send the files (Customer, Address, Policy, Decode) to staging tables through daily Batch.
* In NRT Integration Ensura will send customer, address, and policy information using real-time services and loads customer details into temporary tables from where NRT jobs will pick the data for further processing.
* Batch will run daily once whereas NRT will run for every 5miss to pick latest data and do the validations.
* Telephone, email and customer data is cleansed and validated.
* Address validation happens using Batch Capscan matchpool for Batch and Capscan Real-time Service for NRT flow.
* The data is then sent to matching services for eliminate the duplicates.
* After de-duplication, Data will send to survivorship services to arrive at the Golden Record.
* If any exceptions occurs during the data process to MDM, exception handling services will handle the errors.

## Design Requirements

## Data Cleansing and Business Rules for Ensura Integration

Refer Appendix Section – 6.3 The Presentation covers the Data Cleaning and Standardization, Matching (Customer Record De-duplication) and Survivorship Business rules should be applied for Ensura Customer Data during integration with MDM.

## Design Decisions

| Ref. | Design Decision |
| --- | --- |
| D01 | Interface between Ensura and MDM will be in BATCH mode (daily nightly refresh). Data feeds coming from Ensura should align with ICD format agreed for Daily incremental data feeds.  Another Interface between Ensura and MDM will be in Near-Real-time mode (5mins refresh)  Please refer the appendix section 6.2 |
| D02 | The extract from Ensura to MDM will have only ACTIVE policy for Auto Import and Auto Renewal and associated customer details also daily incremental extract will include all changed records from customer/address/policy entities and it should be consolidated view.  From real-time services as well MDM will receive only ACTIVE customer details from ensura to process via NRT. |
| D03 | MDM Batch Integration will use Capscan Matchcode Batch product to cleanse and standardize the address details coming from source systems for all requests from Ensura.  For NRT, MDM will use Capscan Realtime product for cleansing addresses for all requests from Ensura. |
| D04 | MDM will implement the Data Validation and business rules. These rules will be applied for only Master entities and Cross reference tables should have exact copy of data coming from source (Ensura) |
| D05 | The POLICYREF and CUSTREF fields coming from Ensura will be stored along with Check-digit in MDM Staging and Repository. Combination of Policyref/CustRef and check digit will act as a unique value. And the MDM downstream systems (e.g. Pega) should use the same format when they want to consume cleansed Ensura data from MDM. |
| D06 | Only key fields will be populated from Ensura (as-is copy) to MDM Cross reference tables to support the operational use cases. |
| D07 | In BAU, if any bulk data fixes applied in Ensura then MDM Service delivery team (who manages the MDM system in production) and Design team should be communicated to carry out the impact assessment. |
| D08 | For current scope, there will not be any automated Data Governance capability from MDM to manage and correct the data errors/quality issues cascaded from interconnected systems. |
| D09 | MDM Development should follow the Talend Development Standards, Best practices, and Code review checklist documented. Generic Talend Joblets built within ETL Platform should be reused in MDM Platform wherever applicable (Exception handling, Notifications, MOVEIT handshakes etc.) |
| D10 | Ensura Feed will have a SourceOfRecord and MDM load should be able to configure during the run time to change the behavior without any code changes |
| D11 | Ensura Realtime Requests will be processed via NRT flow and SourceCustomerID from request should be treated as “custref+checkdigit” in ensura. Similary ContracID should be treated as “polref+checkdigit” in ensura. |
| D12 | As party NRT implementation, MDM will handle only specific set of scenarios mentioned in spread sheet in appendix section 6.6. |
| D13 | Ensura publish the value for policy level migration marker to MDM as part of BAU cycle (Ensura Batch process). |
| D14 | The customer level marker will confirm which system(s) the customer’s portfolio of policies is in at any given point in time. This will be derived by MDM from reviewing the customer’s portfolio as a whole (all the policies associated to the MDM Party ID). |
| D15 | Default value for both Policy & Customer level markers will be BLANK in MDM |
| D16 | If MDM receives NULL or BLANK value for policy level migration marker, then the same will be updated / overwritten into MDM Hub for Ensura contracts. |
| D17 | Customer level marker will be updated in MDM only via Ensura BAU batch job (once in a day) and not Realtime services |

## Assumptions

| Ref. | Assumption |
| --- | --- |
| A01 | Existing addresses created in Ensura will be cleansed and validated with Capscan and same information should be published to MDM |
| A02 | If any format / data issues in the Ensura extract (Incremental) will reported back to Ensura Service delivery team and revised extracts (after resolving the issue) should be sent to MDM for processing. |
| A03 | The Ensura extract will have only Core customer details (Customer, Address and Key Policy attributes). The marketing preferences and data history (name changes) will not be loaded onto MDM |
| A04 | Pega will not send the duplicate customer / address records to MDM. The necessary validation and business process will be implemented in Pega (e.g. Agent should Search customer/address records before creating new one etc.) |
| A05 | Customer details coming from Pega and Ensura will have maximum of 5 emails and 5 telephone numbers. And MDM data model is provisioned to store the same limit. |
| A06 | Ensura feeds should be sent in the same order mentioned in the ICD (OperationType, SourceOfRecord) and “RealtimeProcessed” Column not expecting as party of MDM Release4. |
| A07 | In the initial phase of BBDM solution, only the customers with one insurance policy would be migrated from Ensura to eServe system. All or none is the business rule used for this initial phase of migration process i.e. either all the policies related to the customer would be migrated or nothing at all. |
| A08 | Policy level migration marker should be sent to MDM via UpdateParty Service whenever Ensura sends customer / contract updates to MDM |
| A09 | Policy level migration marker will be blank for all eServe policies. |
| A10 | Updating the migration marker values for existing data in MDM (one-off update) is out of scope. These values will get updated in MDM only during the migration process i.e. when the policy/customers are migrated from Ensura to eServe. |
| A11 | There is no impact / behavior changes on the MDM read services due to these migration level markers i.e. DuplicateCustomerCheck, DuplicateCoverCheck and SearchParty services |
| A12 | Once the customer has been migrated to eServe, then Ensura should not send any updates to MDM for that customer on Customer name or Contact details |
| A13 | For Ensura migrated customers, the ‘Data Migration Tool’ should send values of MDMPartyID and MDMAddressID to eServe system. So that the same will be passed to MDM by eServe via CreateParty and MCA services.  Note: Including MDMAddressID field in CreateParty and MCA services is recommended by MDM for NFR reasons. |

## Risks

|  |  |  |  |
| --- | --- | --- | --- |
| Risk No. | Description | Comments | Owner |
| R01 | Ensura and MDM Integration Services in Batch mode | The Ensura extract (Auto Import /Auto Renewal) for MDM will be Batch feed (not real-time) and it might cause data latency issues and will result in Customer in both Ensura and Pega  Mitigation – Duplicate customers’ exception report is available within MDM system to identify that. It can subscribed to support the operational activities. | Ensura Team (HomeServe) |

## Interface Specifications

| Interface Name | Actors Involved | Context goal | Preconditions | Post conditions |
| --- | --- | --- | --- | --- |
| Ensura-MDM Interface | Ensura, MDM | The interface fetches all the data provided by Ensura feed and loads into MDM Staging area | The Ensura system generates the feed file | MDM jobs will pick up the data from MDM Staging tables. |
| Ensura-NRT Interface | Ensura, MDM | The interface fetches all the data provided by services and loads into MDM Staging area | Services will provide data and accept response as per the ICD. | MDM jobs will pick up the data from MDM Staging tables. |

## Interface Frequency and Schedule

| Interface Name | Frequency |
| --- | --- |
| Ensura-MDM Interface  (Daily Incremental Extract) | Immediate (real-time)  On demand  Hourly Day: \_\_\_\_\_\_\_\_\_\_\_ Time: \_\_\_\_\_\_\_\_\_\_\_ Push/Pull: \_\_\_\_\_\_\_\_\_\_\_  Daily Day: \_\_\_\_\_\_\_\_\_\_\_ Time: 03:00 AM BST Push/Pull: Push and Pull  Weekly Day: \_\_\_\_\_\_\_\_\_\_\_ Time: \_\_\_\_\_\_\_\_\_\_\_ Push/Pull: \_\_\_\_\_\_\_\_\_\_\_  Monthly Day: \_\_\_\_\_\_\_\_\_\_\_ Time: \_\_\_\_\_\_\_\_\_\_\_ Push/Pull: \_\_\_\_\_\_\_\_\_\_\_  Quarterly Day: \_\_\_\_\_\_\_\_\_\_\_ Time: \_\_\_\_\_\_\_\_\_\_\_ Push/Pull: \_\_\_\_\_\_\_\_\_\_\_  Annually Day: \_\_\_\_\_\_\_\_\_\_\_ Time: \_\_\_\_\_\_\_\_\_\_\_ Push/Pull: \_\_\_\_\_\_\_\_\_\_\_  Other Day: \_\_\_\_\_\_\_\_\_\_\_ Time: \_\_\_\_\_\_\_\_\_\_\_ Push/Pull: \_\_\_\_\_\_\_\_\_\_\_ |
| Ensura-MDM Interface  (NRT) | Immediate (real-time)  Minutes – Job scheduled for every 5mins.  Hourly Day: \_\_\_\_\_\_\_\_\_\_\_ Time: \_\_\_\_\_\_\_\_\_\_\_ Push/Pull: \_\_\_\_\_\_\_\_\_\_\_  Daily Day: \_\_\_\_\_\_\_\_\_\_\_ Time: \_\_\_\_\_\_\_\_\_\_\_ Push/Pull: \_\_\_\_\_\_\_\_\_\_\_  Weekly Day: \_\_\_\_\_\_\_\_\_\_\_ Time: \_\_\_\_\_\_\_\_\_\_\_ Push/Pull: \_\_\_\_\_\_\_\_\_\_\_  Monthly Day: \_\_\_\_\_\_\_\_\_\_\_ Time: \_\_\_\_\_\_\_\_\_\_\_ Push/Pull: \_\_\_\_\_\_\_\_\_\_\_  Quarterly Day: \_\_\_\_\_\_\_\_\_\_\_ Time: \_\_\_\_\_\_\_\_\_\_\_ Push/Pull: \_\_\_\_\_\_\_\_\_\_\_  Annually Day: \_\_\_\_\_\_\_\_\_\_\_ Time: \_\_\_\_\_\_\_\_\_\_\_ Push/Pull: \_\_\_\_\_\_\_\_\_\_\_  Other Day: \_\_\_\_\_\_\_\_\_\_\_ Time: \_\_\_\_\_\_\_\_\_\_\_ Push/Pull: \_\_\_\_\_\_\_\_\_\_\_ |

# Reconciliation Jobs

As part of the enhancements to MDM in R4, there is are One – off reconciliation that needs to be implemented in MDM. This section covers the design for the same from both the source systems Ensura and PEGA. Due to this MDM would need extra feed from the source systems and ETL jobs needs to be designed for the same that are discussed in the below sections

* As part of the requirement for Duplicate cover a direct link from Contract to Address is created and this is being done by adding MDM Address ID in Contractreferencce table. This Address ID value will be into MDM using recon jobs. Hence no data required from source system for the same.
* Assets will now be stored in MDM at party level and as well as at contract level from Release 4 and MDM would need an extract from PEGA and Ensura for the all the existing Party records
* Offers is a new Entity in MDM that is created to support the duplicate cover check. For this to work all the existing contract from PEGA/Ensura needs to have the offerid/Ensura product id to be mapped. Ensura product ID is already available with in MDM for this mapping. MDM would need an extract from PEGA to define the contract to Offer relation and then it will be used to find the link to the product mapping.

Here is the summary of the jobs developed that MDM would need for reconciliation.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **SNo** | **Job Name** | **Description** | **Source** | **Target** | **Prerequisites** |  |
| 1 | Job\_Ensura\_One\_Off\_AddressContractLink\_Reconciliation | This Job links the addresses with the existing contracts which are loaded as part of earlier releases. | Custom Query to retrieve the MDMAddressID. | Contract Reference(Update Only for Ensura Records) | This Job should run only after MDM R4 Go-Live |  |
| 2 | Job\_Ensura\_One\_Off\_AssetContractLink\_Reconciliation | 1. This Job loads the data into AssetAttributeReference table.  2.  Assets Party and Contract Linking. | Flat file (AssetAttribute) from Ensura. | 1. AssetAttributeReference (Insert Only)  2. PartyAssetContractRef (Insert Only). | This Job should run after successful execution of Job1 |  |
|  |
| 3 | Job\_Ensura\_One\_Off\_OfferContractLink\_Part1\_Reconciliation | This job loads the Production Code (Offers) data from DAA\_Ensura\_Policy table. | DAA\_Ensura\_Policy table. | Offer (Insert Only). | Independent Job |  |
| 4 | Job\_Ensura\_One\_Off\_OfferContractLink\_Part2\_Reconciliation | This job links the offers with the existing contracts which are loaded as part of previous releases. | DAA\_Ensura\_Policy table. | Contract Reference (Update Only for Ensura Records) | This Job should run after successful execution of Job3, Job1 |  |
| 5 | Job\_Pega\_One\_Off\_ AddressContractLink\_Reconciliation | This job links the addresses with the existing Pega Contracts. | ContractsAddressLInk table in ODS. | Contract Reference (Update Only for Pega Records). | This Job should run only after ODS R4 Go-Live. |  |
| (Custom Query on this table to retrieve MDMAddressID from this table) |  |
| 6 | Job\_Pega\_One\_Off\_ OfferContractLink\_Reconciliation | This Job loads the Offers into Offer table and also create a link between offers and existing Pega Contracts. | SaleOrderLineLevel, | Offer table in MDM and Update On Contract Reference table in MDM | This Job should run only after ODS R4 Go-Live and after successful execution of Job5. |  |
| SaleOrderLine, SaleOrder  tables in ODS. |  |

**Ensura Extract Definition:**



# MDM Framework Components

The following sections will have the details of the components required for this solution.



Ensura will provide the Daily Incremental extract files and files will be loaded into DAA staging area.

In NRT data will be loaded into staging area from services.Once the Stage Load process completes, data will be cleansed by applying the cleansing rules defined for customer name, email address, telephones numbers. In addition to this we will integrate Capscan Matchcode Batch Address cleansing tool (Batch version) for cleansing address. Once Cleansing process completes, set business rules and matching rules shall be applied followed by survivor ship rules and then finally golden customer will be defined and it will be loaded into MDM Repository.

The above process shall be completed using the components mentioned in the above diagram. The detailed description of individual diagram has been provided below:

## DAA Loader Component



**Functions:**

* Reuse the existing job to load the files to DAA Staging and no change is required
* Reuse the existing lookups and configuration tables to find out the record changes.
* Once files are loaded into DAA tables, file archiving and Audit jobs will be executed to archive the source files and store the audit information in the Audit tables.
* Once records are cleansed then will update the status as “Processed”.
* Delta DAA Loader extracts only records based on the run time configuration as per Design decision (D10) and records that are flagged as ‘Not Processed’ from DAA staging tables.
* Policy records should not be logically deleted in any scenario. The customer records will be logically deleted in case of change or deletion of customer name / record for exiting Policy and the address records will be logically deleted in case of change of address for existing policy.
* Realtime Services will load the data into staging area and NRT flow will pick this data and loads into DAA staging area.

## Email Cleansing and Validation



**Functions:**

1. The Email Cleansing and Validation component is reusable / pluggable Talend Job let.
2. This component extract required columns from **STG\_EMAIL\_CLEANSING\_INPUT** tables for email cleansing.
3. Performs cleansing based on the business rules defined in Section 6.3.
4. **Email Exclusion List** should be configured as the generic lookup and it should facilitate add/remove entries.
5. Once cleansing and validation is completed, processed records will be loaded into target with Error codes and status configured in **MDM Error Catalogue**.
6. The **STG\_EMAIL\_CLEANSING\_OUTPUT** table is truncate and load for every run.

## Telephone Cleansing and Validation



**Functions:**

1. The telephone cleansing and validation component is reusable / pluggable Talend Job let.
2. This component extract required column from STG\_TELEPHONE\_CLEANSING\_INPUT table for telephone cleansing.
3. Performs cleansing based on the business rules defined in Section 6.3
4. Telephone exclusion list should be configured in the generic lookup and it should facilitate add/remove entries.
5. Once cleansing and validation is completed, processed records will be loaded into target with Error codes and status configured in **MDM Error Catalogue**.
6. The STG\_TELEPHONE\_CLEANSING\_OUTPUT table is truncate and load for every run.

## Customer Name Standardization



**Functions:**

1. The Customer Name Cleansing and Validation component developed as Talend Job let.
2. Extracts required columns from STG\_CUSTOMER\_CLEANSING\_INPUT table to apply cleaning rules.
3. Performs Cleansing and Validation based on the rules defined in Section 6.3
4. In case of Joint Customer Names (Customer Title contains “&”) and Customer name matches with Defaulted customer name list then populate the ReviewFlag as “Y” otherwise leave it as blank.
5. After Cleansing and Validation is completed resulted records will be loaded into STG\_CUSTOMER\_CLEANSING\_OU TPUT table (truncate and load for every delta run)

## Address Cleansing & Validation



Functions:

1. The Address Cleansing Component is reusable / pluggable Talend Job let.
2. Extracts the address details from STG\_ADDRESS\_CLEANSING\_INPUT and processes raw address based on the business rules defined in Section 6.3
3. This Component internally uses Capscan Matchcode Batch APIs to cleanse and standardize the address. The cleansed address from Capscan expected to provide the Address key along with standardized address.
4. The output records should be loaded on to STG\_ADDRESS\_CLEANSED\_OUTPUT table with Error codes configured in Error Catalogue.
5. The file handshake between MDM and Capscan Servers should happen via MOVEIT as outlined in the above diagram.
6. In NRT flow input addresses will be processed using Capscan Relatime Product and will apply same validation rules to flag PAF and NONPAF address after cleansing.

## CRF Generation

The de-normalized view of cleansed customer details / keys will be stored in CRF (Common Record Format) structure. There are two types of CRFs,

## Transactional CRF Generation



**Functions:**

1. Transactional CRF extracts customer records from DAA Staging tables and Cleansing output tables and forms deformalized view of customer records.
2. Transaction CRF will extract only transactional data specific to source system (Ensura daily extracts).
3. Loads the Transactional CRF records into CRF table.

## Master CRF Generation



**Functions:**

1. Master CRF extracts customer records from MDM Master Tables and forms deformalized view to perform the reference matching.
2. Addresses stored in MDM should be cleansed and standardized using Capscan if it is not done already (e.g. addresses created from Pega are not validated with Capscan, till Pega integrates with Capscan this approach need to be followed)
3. Loads the Master CRF records into CRF table.

## Customer Matching (Transactional and Reference)

The CRF Table (Transactional CRF) is input to bulk matching module which groups the CRF records into Match Clusters containing duplicate records for a customer based on provided Match Rules. Each Cluster is assigned a unique MatchGroup ID (temporary MDM Customer ID)

This Customer Matching process divided into two phases.

1. Transactional Customer Matching: Matching within the Source system(s)
2. Reference Customer Matching: Matching incoming Transactional CRF record with MDM Hub (Master CRF)



**Functions:**

1. Transaction Customer Matching matches the transactional CRF records using Match Rule X1 and C1 and creates match clusters. Within each match cluster the customer name fuzzy matching will be applied (match score pass threshold should be configurable) and it populates the matching attributes in CRF.
2. Reference Customer Matching matches unmatched and matched (grouped to apply to transitivity) transactional CRF records with Master CRF records and perform customer name fuzzy matching then populates the matching attributes in CRF.
3. Transactional CRFs marked with (party\_review\_flag=Y) should be matched within this data segment and similar principle should be applied for reference matching as well.
4. Once the Bulk matching module processes the CRF table, the below columns in CRF table are updated for each record.
   * Match Group Id (group id will be created for matched records)
   * Match Indicator
   * Customer Name Fuzzy Match Score
   * Match Rule
   * MDM Party ID
   * CRF Status

## Survivorship



Once the CRF records are updated with bulk matching related columns, the CRF table is input to Survivorship module which filters the Match Cluster based on Survivorship Rules defined in Section 6.3. From each Matched Cluster and Unmatched Source Customer record the Golden Customer record will be defined and contact details (email, telephone and address details) will be aggregated and loaded on to MDM Shadow tables (for Master and Xref tables)

## MDM Data Loader

Once “Golden” Customer Record is identified for each Match Cluster, Generic MDM Loaders are used to Load data into MDM Hub Master Tables. Also the records from DAA staging tables are loaded into MDM Hub Cross Reference Tables. In NRT MDM Hub Cross Reference Tables will load by create party and updated party services and Hub entities will be loaded via NRT MDM data Loaders.

## Data Exceptions (Manual Data Governance)

Data execution / rejections from MDM framework components will be persisted within MDM Staging database. The data exception reports can be subscribed (On-Demand) from MDM system to support the manual data governance functions.

Talend MDM Web User Interface (out-of-box feature), Talend Staging and MDM database access should be granted to Data Stewards to support the manual data governance functions.

1. Ensura feed – Data format errors / file corrections will be reported back Ensura Service delivery team.
2. Invalid Email, Telephone and Address details captured from Data Cleansing components will be maintained within MDM Staging database along with Error code.
3. Customer records matched across stacks (Pega and Ensura) report will be captured and available within MDM system. This report should be published on daily basis to support the operational activities.
4. To identify Duplicate cover sold to a party at property level as report will be made available within MDM system. This report should be published on daily basis to support the operational activities
5. Customer record anomalies (Joint Customer names – e.g. Mr & Mrs) / Default Customer names – e.g. The Homeowner) quality indicators will be set (review flag) for manual review.
6. Exception reports Module will be skipped in NRT flow but error data will be loaded into RPT tables. That said, the reports will be generated as part of Ensura Batch flow and these reports will include error records loaded NRT flow.

## MDM Data Model Enhancements

The MDM Data model has been updated for MDM Release (Ensura Integration).



Data Model Changes (Summary)

Following table describes the changes covered in the MDM model for Ensura Integration,

|  |  |  |
| --- | --- | --- |
| **MDM Entity** | **Attribute Added** | **Description** |
| ContractReference | MinorVersionNo | Reference to Minor version of the policy |
| PartyCustomerAccount | partyAccountID | Refer to partyAccountid |
| PartyCustomerAccount | CustomerAccou\_1395186591 | Reference to the CustomerAccount of the CustomerAccountnumber for the customer |
| PartyCustomerAccount | mdmpartyid\_x\_mdmpartyid | Refer to party.mdmpartyid |
| PartyCustomerAccount | SSID | Refer to party.SSID |
| PartyCustomerAccount | PartyAccountStatus | Refer to partyaccount status |
| PartyCustomerAccount | CreatedDate | Reference to CreatedDate of partyCustomerAccount |
| PartyCustomerAccount | CreatedBy | Refer to partyaccount CreatedBy |
| PartyCustomerAccount | UpdatedDate | Reference to UpdatedDate of partyCustomerAccount |
| PartyCustomerAccount | UpdatedBy | Refer to partyaccount UpdatedBy |

## MDM Entity Description

|  |  |  |
| --- | --- | --- |
| **Table Name** | **Category** | **Description** |
| Party | Master | Party entity contains all the demographic information of the customer/prospect like Name, DOB, Marital status etc. |
| Address | Master | Address entity stores the postal address elements |
| Contactpoint | Master | Generic table stores the Email and Telephone number along with its type (e.g. Home/Mobile). |
| CustomerAccount  Reference | Reference | This entity stores the customer account details coming from source systems. |
| PartyCustomerAccount | Master | This entity stores the customer account details and  Related party details. |
| ContractReference | Reference | This entity stores the Contract/Policy details like Contract ID, Status, party address id, contractref id,major versionno coming from the source system etc. from source systems |
| Xref\_Party | Source CrossReference | This entity stores the party (customer/prospect) details coming from source systems |
| Xref\_Address | Source CrossReference | This entity stores the party address details coming from source systems |
| Xref\_PartyEmail | Source CrossReference | This entity stores the party email details coming from source systems. |
| Xref\_PartyTelephone | Source CrossReference | This entity stores the party telephone details coming from source systems. |
| SourceSystemDetail | Reference | This entity stores the System Identifiers and associated details where MDM will be integrated. |
| AssetAttribute | Source | This entity stores the Asset details coming from the source system |
| Offer | Reference | This entity stores the Offer id details which is coming from the source system. |
| PartyAssetContractref | Reference | This entity stores mdmpartyid,assetid,contractrefid ,status,….etc |
| ProductMapping | Reference | This entity stores the information about the mapping columns. |

## 

## Key MDM Staging tables

The following list of staging tables needs be created in MDM Staging database

| Sno | Staging table | Description |
| --- | --- | --- |
| 1 | DAA\_ENSURA\_CUSTOMER/ DAA\_ENSURA\_CUSTOMER\_RT | Stores the customer details received from source system(s) in raw format. |
| 2 | DAA\_ENSURA\_ADDRESS/ DAA\_ENSURA\_ADDRESS\_RT | Stores the customer address details received from source system(s) in raw format. |
| 3 | DAA\_ENSURA\_POLICY/ DAA\_ENSURA\_POLICY\_RT | Stores the customer policy details received from source system(s) in raw format. |
| 4 | STG\_EMAIL\_CLEANSING\_INPUT/ STG\_EMAIL\_CLEANSING\_INPUT\_RT | Stores the required columns for email cleansing from DAA tables |
| 5 | STG\_EMAIL\_CLEANSING\_OUTPUT/ STG\_EMAIL\_CLEANSING\_OUTPUT\_RT | Stores the cleansing email addresses |
| 6 | STG\_TELEPHONE\_CLEANSING\_INPUT/  STG\_PHONE\_CLEANSING\_INPUT | Stores the required columns for telephone cleansing from DAA tables |
| 7 | STG\_TELEPHONE\_CLEANSING\_OUTPUT/ STG\_PHONE\_CLEANSING\_OUTPUT\_RT | Stores the cleansing telephone numbers |
| 8 | STG\_ADDRESS\_CLEANSING\_INPUT/ STG\_ADDR\_CLEANSING\_INPUT\_RT | Stores the required columns for address cleansing from DAA tables |
| 9 | STG\_ADDRESS\_CLEANSING\_OUTPUT/ STG\_ADDR\_CLEANSING\_OUTPUT\_RT | Stores the cleansing addresses from capscan |
| 10 | STG\_TXN\_CRF/ STG\_TXN\_CRF\_RT | Common Record Format, De-normalized view of customer details, Capscan keys and other details for matching. |
| 11 | STG\_CUSTMATCH\_OUTPUT/ STG\_CUSTMATCH\_OUTPUT\_RT | Customer Matching configuration table |
| 12 | TGT\_PARTY/TGT\_PARTY\_RT | Stores data after applying survivorship rules |

**Note:** Only the key tables are highlighted above. However additional tables might be created (if required) during the implementation based on the complexity of transformations / non-functional impacts.

## Reference Dataset (Metadata)

The following lookup file/tables(s) should be created within MDM Framework and it should be reused within all the components and multiple systems (e.g. Pega and Ensura).

1. Telephone number exclusion list
2. Email address exclusion list
3. Defaulted customer name and Joint Customer name review marker list
4. Name Fuzzy Matching Score configuration
5. Survivorship Context and priority list
6. Error code and Error description lookup
7. List of policy statuses to be stored in MDM (mapping between Ensura and Pega Policy statues) . In R4, one more new status is added (Ensurastatuscode F)
8. Standardized list of customer titles.
9. Product Mapping Data from PEGA, Ensura & Claim Center
10. AreaCodes list

## Mapping Specifications

The following High level Mapping Specification Documents should be used to build the MDM Technical Components along with Business rules. If needed detailed mapping specification need to be prepared during the construction phase with low level design details.

|  |  |  |  |
| --- | --- | --- | --- |
| ID | Technical Component | Mapping Document | Version |
| 1 | DAA Data Loader (Ensura to MDM Staging) |  | 0.5 |
| 2 | Telephone Cleansing |  | 0.3 |
| 3 | Email Cleansing |  | 0.3 |
| 4 | Address Cleansing |  | 0.3 |
| 5 | Address Cleansing NRT |  | 0.1 |
| 5 | Customer Name Cleansing |  | 0.3 |
| 6 | CRF Mapping |  | 0.4 |
| 7 | MDM Master and Cross Reference tables mapping |  | 0.4 |

# Non-Functional Design

## Security and Data Access

* Transfer and delivery of Ensura Extract Files (containing customer data) to MDM Inbound directory should happen in secure mode via Homeserve Secure File Transfer Capability (MOVEIT). Refer section 6.2 for more details.
* The transfer of batch address files between MDM and Capscan server and vice-versa should happen in secure mode via Homeserve Secure File Transfer Capability (MOVEIT).

Refer section 6.4 for more details.

* MDM Inbound directories should have required privileges for talend user to read/write files. The inbound folder on Talend ETL/MDM Server will only be accessible for MOVEIT and Talend user accounts.
* For NRT data will receives from create and update party service.

## SLA

Ensura daily incremental extract files should be available on the target secured ETL server location before 03:00 GMT each day morning. Talend job will start polling for the extract files from Source Folder at 03:00 GMT daily. If file is not available on specified time then email notification should be sent. NRT jobs should schedule to run for every 5 mins and If first job is not completed in 5min next jobs will wait for the first job to complete.

## Performance Considerations

The MDM and Ensura Integration Batch processes (Daily incremental data load) execution time need to be aligned with below performance metrics. However this estimates should be validated from Pilot data loads and base lined.

|  |  |  |  |
| --- | --- | --- | --- |
| ID | MDM Batch/NRT Processes (Ensura Integration) | Expected Volume (Ballpark) | Execution Time (Ballpark) |
| 1 | Daily Incremental MDM Batch process(Ensura batch) | Delta records on daily basis,  Policy – 20K  Customer – 10K and  Address – 10K | 3 - 5 Hours (Between 3:00 to 8:00 GMT) |
| 2 | Incremental MDM NRT process(Ensura batch) | Delta records on NRT basis,  Policy –100  Customer –100 and  Address –100 | |  |  | | --- | --- | | **NoOfRecords** | **Execution Time** | | 100 | 3.40 sec | | 200 | 3.45 sec | | 300 | 3.55 sec | |

## Deployment, Scheduling & Notification

Refer to Deployment guide for deployment strategy, approach and best practices.

In summary the MDM Ensura Batch/NRT Jobs and Realtime Services will be deployed in Talend Job Server and ESB/MDM Runtime Server via Talend Administrator Centre (TAC). Email notification will be configured within TAC to send an alert to service delivery team whenever an error condition happens.

## Error Handling and Fault Management

Service Delivery team will use Talend Administrator Center (TAC) to monitor the MDM application. However critical exceptions or errors should be notified via email. Some of the common exceptions are,

* Source files not received from MOVEIT as per the scheduled time
* Source file corruption and format errors
* MDM Batch ETL Job failures
* MDM ESB Services down (not accessible)
* Infrastructure failures – Network connectivity issues, Database not reachable etc.



Please refer MDM Error Catalog present in Appendix 6.5 which provides the error code and corresponding error description.

## MDM Batch ETL Jobs and NRT Jobs – Restartability

For MDM Daily Incremental Data Loads, Separate Master MDM ETL Job (Wrapper) should be created and it should invoke the child jobs based on job control configuration defined. Sample Job control configuration, it can be fine-tuned based on the needs.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Job ID** | **Incremental MDM Child Jobs** | **Execution Step** | **Parallel Execution for ensura batch** | **Parallel Execution for NRT** |
| 1 | Ensura Incremental File Validation | 1 | N | N/A |
| 2 | Delta DAA Loader/Stage load | 2 | N | N |
| 3 | Email Cleansing and Validation | 3 | Y | Y |
| 4 | Telephone Cleansing and Validation | 3 | Y | Y |
| 5 | Address Cleansing and Validation | 3 | Y | Y |
| 6 | Customer Name Cleansing and Validation | 3 | Y | Y |
| 7 | Transactional CRF Generation | 4 | Y | Y |
| 8 | Master CRF Generation and Refresh | 4 | Y | Y |
| 9 | Customer Matching | 5 | N | N |
| 10 | Survivorship | 6 | N | N |
| 11 | MDM Delta Loader | 7 | N | N |
| 12 | Report Generation | 8 | N | N/A  (Point 6 in section 4.10) |

Sample ETL Job audit table defined below. This table can be used to monitor the MDM Batch and NRT jobs execution. “Restart Flag” can be enabled for particular run id and job id, the Wrapper job will read configuration and will automatically restarts from respective child job.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Run ID** | **Job ID** | **Incremental**  **MDM**  **Child Jobs** | **Execution**  **Step** | **For**  **Ensura**  **batch** | **For**  **NRT** | **Execution Status**  **(Started,**  **Completed,**  **Failed)** | **Start Time** | **End Time** |
| 1 | 1 | Ensura Incremental File Validation | 1 | Y | N/A |  |  |  |
| 1 | 2 | Delta DAA Loader/stage load | 2 | Y | Y |  |  |  |
| 1 | 3 | Email Cleansing and Validation | 3 | Y | Y |  |  |  |
| 1 | 4 | Telephone Cleansing and Validation | 3 | Y | Y |  |  |  |
| 1 | 5 | Address Cleansing and Validation | 3 | Y | Y |  |  |  |
| 1 | 6 | Customer Name Cleansing and Validation | 3 | Y | Y |  |  |  |
| 1 | 7 | Transactional CRF Generation | 4 | Y | Y |  |  |  |
| 1 | 8 | Master CRF Generation and Refresh | 4 | Y | Y |  |  |  |
| 1 | 9 | Customer Matching | 5 | Y | Y |  |  |  |
| 1 | 10 | Survivorship | 6 | Y | Y |  |  |  |
| 1 | 11 | MDM Delta Loader | 7 | Y | Y |  |  |  |
| 1 | 12 | Report Generation | 8 | Y | N/A  (Point 6 in section 4.10) |  |  |  |

The individual MDM Jobs (child jobs) should be also designed re-run in case of any exception or error scenarios based on best practices defined in Talend Development Standard documentations (e.g. Use On Subject OK (check point), Truncate and Load the intermediate staging tables etc.).

## Archiving

Inbound files will be moved to Archive directory and .OK files will be deleted from inbound directory. and For NRT this archiving is not applicable.

## Audit Logging

After every MDM Batch Incremental Job run, audit logging should be performed. Job Audit Log is a common table it should have number of input records from source, number of records loaded onto MDM Hub, number of rejected records, error code, error description etc. should be maintained.

For ensura batch batchid values should be between 10,00,000 to 49,99,999 and For NRT batchid values should be between 50,00,000 to 99,99,999. Below are audit log tables used in MDM implementation.

* + - 1. Job\_Control\_Log – To check Status of Module
      2. MDM\_Audit\_Log – To check each sub job execution status

## Email Notification

Whenever there is an error or any component level failure then MDM Batch Job should send an email to the support team who will look into issue and take necessary action.

**Format of Email Notification when a job fails:**

**Distribution List**: TBD

**Subject:** !!!Job Aborted!!!: {Job Name}

**Body of Email:** {Job Name} has been aborted…..

**Signature:** This is an automated mail generated by the system. Please do not reply.

## Housekeeping Policies:

* Records marked with Deleted Flag=Y (logical deleted) should be deleted after “n” days. By default n=90 days and it should be configurable.
* Intermediate files created in file system and temporary tables created in MDM Staging database should be purged (if it is not required for further processing) after completion of Delta run every day.

# Appendix

## BRD for Ensura Feed to MDM:

[https://serveusa.sharepoint.com/sites/HomeServe/GlobalResources/GlobalProjects/Ensura/Programme%20Documentation/BRD%20for%20Ensura%20Extract%20to%20MDM%20-%20UK.docx?d=w7e528cc3e6a7417aa71023f288bfff18](https://serveusa.sharepoint.com/sites/HomeServe/GlobalResources/GlobalProjects/Ensura/Archive%20%20documents/MDM/Governance/BRD%20for%20Ensura%20Extract%20to%20MDM%20-%20UK.docx?d=w7e528cc3e6a7417aa71023f288bfff18)

## MDM and Ensura Interface Contract Document (ICD)

<https://serveusa.sharepoint.com/sites/HomeServe/GlobalResources/GlobalProjects/Ensura/Programme%20Documentation/Unity_Ensura_MDM_ICD.docx?d=wa0db840dad7b40f0879c424aaa76c1ac>

## MDM Release – Business Rules Presentation:

[https://serveusa.sharepoint.com/sites/HomeServe/GlobalResources/GlobalProjects/Ensura/\_layouts/15/WopiFrame.aspx?sourcedoc={6CBD9861-0900-46A5-A39B-808A009CCB0F}&file=Unity\_MDM\_Release\_Business\_Rules.pptx&action=default](https://serveusa.sharepoint.com/sites/HomeServe/GlobalResources/GlobalProjects/Ensura/_layouts/15/WopiFrame.aspx?sourcedoc=%7b6CBD9861-0900-46A5-A39B-808A009CCB0F%7d&file=Unity_MDM_Release_Business_Rules.pptx&action=default)

## Capscan and MDM Interface Contract Document (ICD)

<https://serveusa.sharepoint.com/sites/HomeServe/GlobalResources/GlobalProjects/Ensura/_layouts/15/WopiFrame.aspx?sourcedoc=%7B17702597-57E5-4B66-9ECB-4ACBCC8ABDD8%7D&file=Unity_Capscan_MDM_Batch_ICD.docx&action=default>

## MDM Error Catalogue

<https://serveusa.sharepoint.com/sites/HomeServe/GlobalResources/GlobalProjects/Ensura/Programme%20Documentation/Release4_MDM_Error_Codes.xlsx?d=w6f46052b2e684edca2b812b7e4bb56c9>

## List of Scenarios as part of NRT implementation

[https://serveusa.sharepoint.com/sites/HomeServe/GlobalResources/GlobalProjects/Ensura/Programme%20Documentation/INT32\_New\_Scenarios\_for\_MDM%26Ensura\_DesignChangesv2.0.xlsx?d=w75164e85537e452295bdfc2ec1fdad01](https://serveusa.sharepoint.com/sites/HomeServe/GlobalResources/GlobalProjects/Ensura/Archive%20%20documents/Release%204/A&D/INT32_New_Scenarios_for_MDM&Ensura_DesignChangesv2.0.xlsx?d=w75164e85537e452295bdfc2ec1fdad01)

## BBDM CR241 related artifacts

**CR requirement:**



**LOVs for Migration Markers:**



**Design discussion email – CR241:**

## 

**Email from Karthic (Ensura team) on CR241 discussion:**

