CLEARMDM

clearMDM – Installation Guide v1.7 Product Version Spring ‘25 v9.27

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Product Introduction

The clearMDM product is a native application provided as a managed packaged that delivers a master data management solution for the Salesforce platform. There are no off-platform components to the solution and data is not transited off-platform for processing by external services. The product UI is Lightning Ready and supports Salesforce1 for mobile access.

The clearMDM product supports the MDM operations outlined below in their logical sequence.

Further details for each MDM operation are provided in the product QuickStart documentation.

(BT) **Normalisation**. Standardisation of field values using list Custom Setting lookups (Country codes, Root First Names etc.) or predefined transformation formats (email domain, URL, Title case etc.). Normalisation generates Blocking Keys (or match keys) used as the first pass in record matching.

(BTU) **Matching**. Cross-object matching of records using key, deterministic and probabilistic (fuzzy) matching rules.

(B) **Internal Matching**. Single object large data volume matching operation.

(BU) **Merge**. Custom merge functionality compatible with Standard and Custom objects and also portal enabled accounts, person accounts and contacts. There is no dependency on the standard platform merge capability.

(B) **Synchronisation**. Master Records are updated directly to reflect field modifications on their Source Record. Synchronisation adds efficiency as the 2-step match and merge cycle is avoided; existing Source Record to Master Record relationships are utilised.

(B) **Conversion**.

(B) **Reparenting**. Child Records related to a Source Record can be re-parented to the related Master Record via lookup relationship.

(B) **Custom Rollups**. Numeric fields on Child Records can be aggregated to the Master Record (via lookup relationship).

Prefixes indicate entry points:
B = Batch (Scheduled Job or Custom Action – REST API/Process Builder)
T = ApexTrigger
U = User Interface/Manual

Key Concepts

Concept	Definition
Target Objects	A compatible object that is defined as the target for Matching operations and where Master Records will be created or updated. Account, Contact, Lead Standard Objects are typically configured as Target Objects, where duplicate records may exist directly in the object or indirectly in a separate object. A broad range of **Standard Objects** (including Person Accounts) are supported as both Target Objects and Data Sources. **Custom Objects** are also supported.
Data Sources	A compatible object that provides data to MDM operations. Each Data Source has a Source Object and a Target Object setting. Internal Data Sources expose data held in the Target Object. **Data Source (Account) > Target Object (Account)** External Data Sources expose data held in a different object. **Data Source (ERP Companies) > Target Object (Account)** **Partition Data Sources** enable a single object to support multiple Data Sources with distinct settings. Partition Data Sources are typically used to group records relating to an external system (e.g. SAP, Sage X3) or to isolate records at different quality grades (e.g. High, Medium and Low). **Master Record Data Sources** allow Master Records to be exposed to MDM operations via a distinct Data Source with appropriate settings such as elevated merge field priorities. A Master Record Partition data source is implemented as a partition data source that references the record MDM status value. **Check-only Data Sources** support cross-object matching between standard objects. The primary use case for Check Only Data Sources is duplicate checking across Leads, Contacts and/or Person Accounts. For example, Lead creation (file import, UI data entry etc.) can be blocked where the Lead matches to an existing Contact.
Master Records	The **Master Record** is the output of MDM processing and is optionally related to the underlying Source Records (or duplicates) via relationship field or simply through the concatenation of record identifiers into a field on the Master Record. Most typically a Master Record is a de-duplicated Account, Person Account, Contact or Lead record enriched with data from its related Source Records. Where Source Records (or duplicates) are not removed, it is typical to use the Salesforce sharing model to present Salesforce end-users with access to Master Records only – thereby removing the visibility of duplicates.

Source Records	**Source Records** are the input to MDM operations and may be related to a Master Record. Source Records can be retained or deleted. Source Records can be considered as the underlying duplicates that are often hidden from view for Salesforce end-users or deleted entirely once processed.
Master Record Update Logic - Attribute Group	**Attribute Groups** are collections of fields on a Target Object that must be merged together from a single Source Record only. In determining how the Master Record fields (in the Attribute Group) are populated each related Source Record is evaluated for validity (typically completeness) and priority. Attribute Group priority can be defined on a Newest, Oldest or Dynamic Priority basis allowing custom business rules to direct which Source Record the field values are taken from. Attribute Group processing performs a full re-evaluation of all Source Records for a given Master Record whenever a new or existing Source Record modification is identified. Merge and Synchronisation MDM operations perform Attribute Group processing.
Master Record Update Logic – Field Priority	Fields that are not mapped to an Attribute Group are processed using Data Source specific **Merge Priorities**. Master Records retain a memory of the Source Record (and Data Source) that last updated each field. Subsequent Merge and Synchronisation operations will only update fields from a Source Record with a higher merge priority for the field, or where the record is more recently updated should the priority be equal. Manual updates, where Master Record fields are directly updated via the Salesforce UI or APIs, are assigned a merge priority that can be used in the relative scale evaluation applied to each field. This allows manual updates to be retained irrespective of the occurrence of Source Record updates on a per-field selective basis.

Pre-requisites

Permissions

The clearMDM package installs with default permissions for two distinct user roles; Data Steward and MDM User. The default permissions serve as a starting point from which the required permissions structure can be defined by a Salesforce Administrator. The Data Steward role is intended for users that are responsible for data management generally and MDM processing specifically. Data Stewards will take administrative ownership of the clearMDM product, define and implement requisite record lifecycles, steward candidate matches and generally take responsibility for the application configuration of the clearMDM product and the outcomes achieved. The objective of the Data Steward should be to implement optimal data management processes, supported by MDM operations, that abstract data duplication from end-users and deliver a clear 360-degree view for all master records. The MDM User role is intended for any Salesforce user that may create records or benefit from viewing dynamic hierarchy visualisations related to records to which they have access.

The default permissions, for the two roles described above, are packaged as Profile Permissions and Permission Sets. In the former case the installation process allows the Profile Permissions to be overlayed onto selected profiles within the subscriber org. In the latter case users can be assigned to Permission Sets as required, with no impact on their current User Profile assignment.

The recommended best practice approach to permissions is assignment via Permission Set.

MDM Fields

The clearMDM product requires that each object defined as a Target Object and/or Data Source is configured with a set of custom fields that comply with the MDM Fields requirement outlined in Appendix A. The complete set of MDM Fields for Account, Contact and Lead are installed by the package by default. For additional objects, the MDM fields must be configured directly within the subscriber org.

Step 1 - Install the clearMDM managed package

The clearMDM managed package is installed from the Salesforce AppExchange via the “Get It Now” link on the product listing page or you can “Try It Free”.

Selecting “Get It Now” allows you to either log in with Trailblazer.me or you can continue as a guest. If you continue as a guest, you can create a free trial Salesforce Account. An email will be sent to verify the new Salesforce Account and then you can install clearMDM from the AppExchange using the “Try it Free” option.

If you already have a Sandbox to install clearMDM into, then use the “Try it Free” option.

ClearMDM Agentforce Agent Actions can also be installed via the AgentExchange option in the Salesforce AppExchange. Get it Now follows the same pattern as explained above.

clearMDM licensing is applied at the org-level, not per-individual user. The package installs with a default trial license which expires 10 days after installation. Please contact us at hello@clearmdm.com to purchase an annual subscription license, or to discuss specific implementation requirements. Please contact clearMDM before implementation in a production Salesforce org.

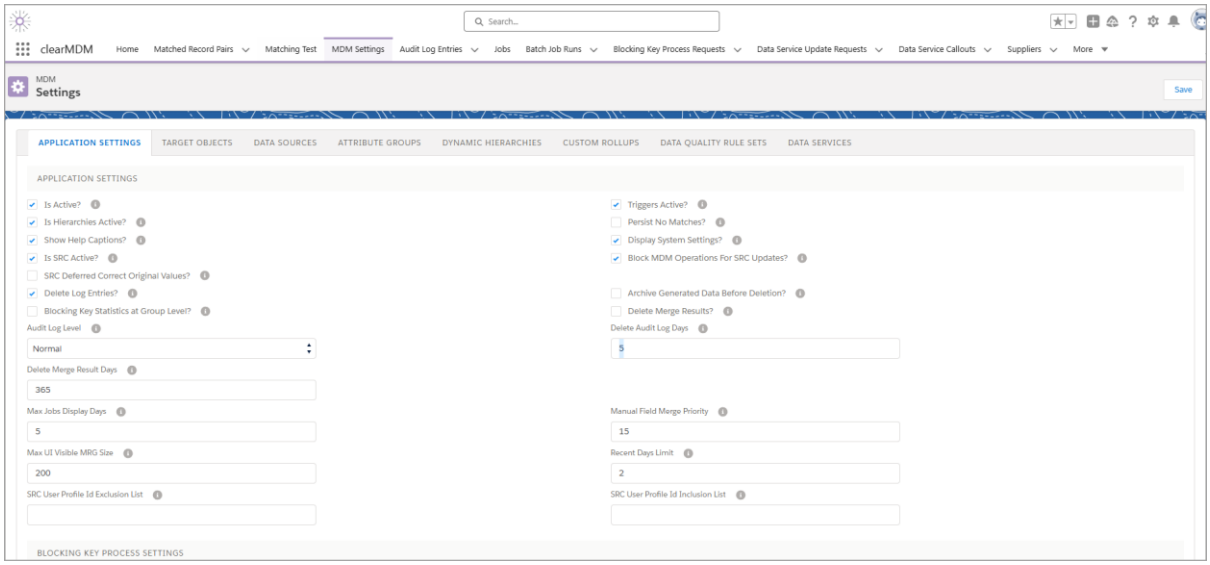
Please note; the product edition linked to the AppExchange listing is the Enterprise Edition.

All subsequent steps require a login user that has been assigned the [MDM Data Steward] permission set, or has a profile that was assigned the [MDM Data Steward] permissions during installation. Note, the standard permission (Customize Application) is also required.

Please note; the “Get It Now” link referenced above allows installation of clearMDM Enterprise Edition to a selected sandbox or production org with a 10-day trial license. It is not recommended that a production org is used. The trial period can be extended upon request.

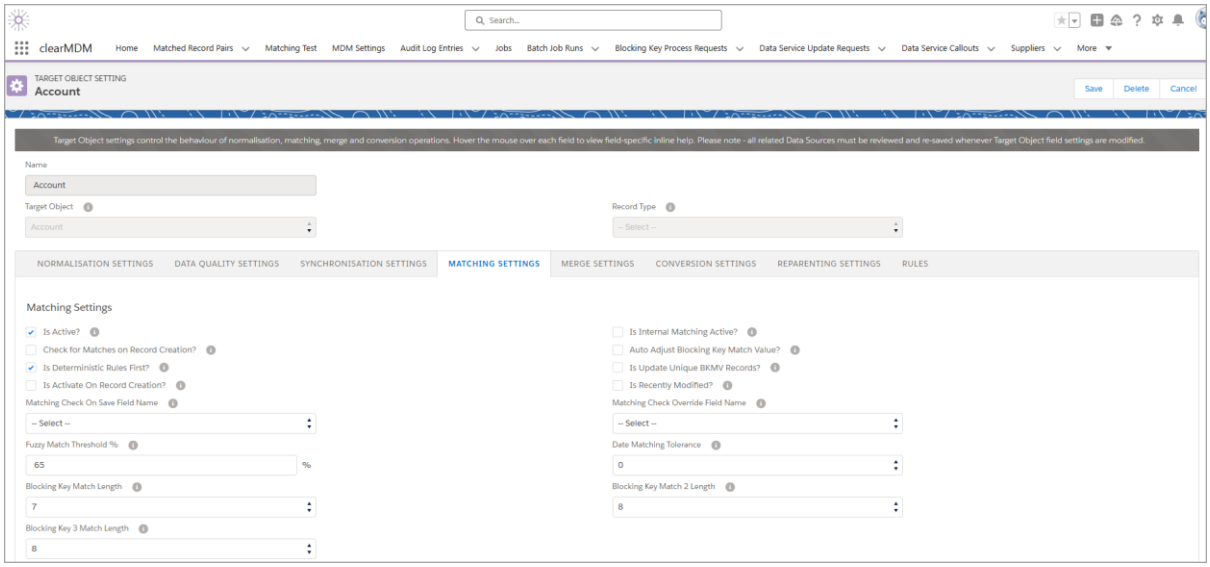
Step 2 - Product Activation

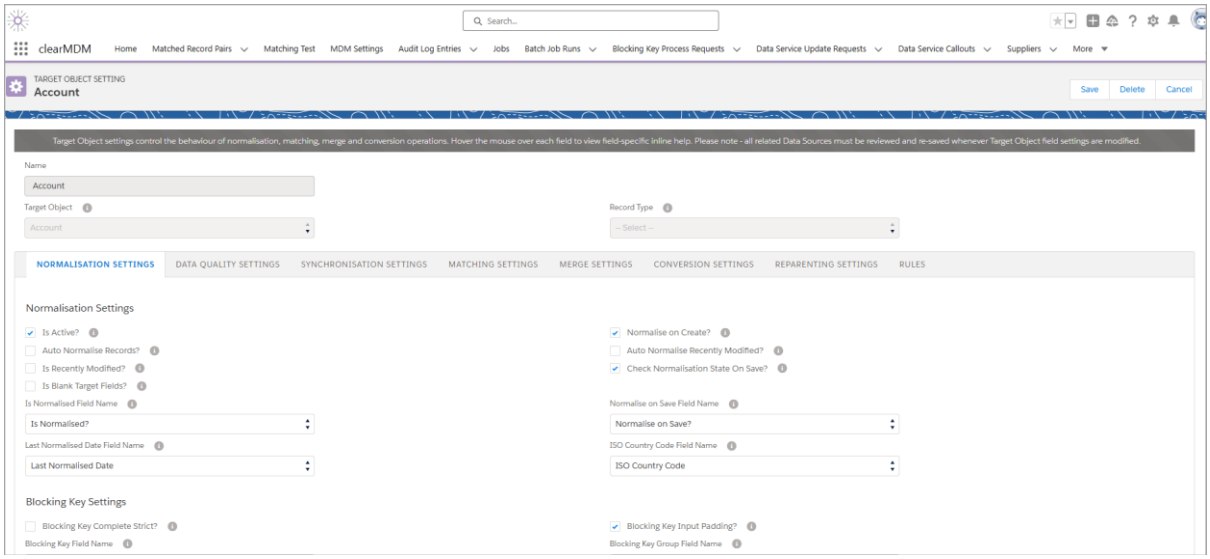
The clearMDM managed package installs in an inactive state and must be explicitly activated before changes are made to the application configuration. The screenshot below shows the Settings tab which can be accessed via the MDM custom application. The **[Is Active?]** checkbox must be checked and the Save button clicked to activate the package functionality. Upon doing so, additional sub tabs, within the Settings tab, will appear to enable configuration of the clearMDM package functionality.



Step 3 - Target Objects

A Target Object is the direct target for all MDM operations. Data is normalised, matched and merged or synchronised into existing or new Master Records held in a Target Object. A Target Object could be a compatible standard object or a custom object. For example, the Matching MDM operation runs for a specific Target Object; Source Records are gathered across all Data Sources that reference the Target Object and matched as a combined data set. All objects for which Data Sources will be defined must be configured as a Target Object with Normalisation Settings. This is necessary as the Normalisation MDM operation populates the Blocking Key field values required by the Matching MDM Operation.





Note, only active and configured MDM Operations are listed on the Jobs page when a Target Object is selected.

Note, for objects not listed on the Target Objects tab (Settings page) the following steps must be completed.

- ✓ Click the Add button.
- ✓ Select the Target Object from the list.
- ✓ Configure the Target Object settings as described below.

3.1 Normalisation Settings

The Normalisation MDM operation standardises field values and populates blocking key values which support the initial blocking (or matching) passes applied by the Matching MDM operation.

Setting Area	Usage
Normalisation Settings	The Normalisation MDM operation can be applied to all Source Records held within the Target Object **[Auto Normalise Records?]**=True, or on a selective basis where the **[Is Normalised Field Name?]** field is employed. When Auto Normalisation is active it is possible to limit the record processed to those that have been modified since the previous day on an inclusive basis via the **[Auto Normalise Recently Modified?]** setting. When Auto Normalisation is not active, Source Records processed by the Normalisation MDM Operation have the **[Is Normalised Field Name?]** field set to True. clearMDM can detect when field changes occur that invalidate the Normalisation state and set the **[Is Normalised Field Name?]** field to False to ensure that the next Normalisation MDM operation will re-normalise the record. This behaviour is set via the **[Check Normalisation State on Save?]** setting.
Blocking Key Settings	The Normalisation MDM operation populates the specified **[Blocking Key Group Field Name]** and **[Blocking Key Field Name]** fields with matching tokens used in the first matching (or blocking) passes applied by the Matching MDM Operation. Normalisation also sets the **[Is Blocking Key Complete?]** field to True where a complete blocking key could be generated from the fields populated on the Source Record. Source Records without this flag set are excluded from the Matching MDM operation.
Blocking Key Structure	Up to 3 input fields can be selected for the blocking key population; for each field an input length can be specified. Determination of an appropriate blocking key strategy, grounded in the characteristics of the specific data set, is imperative to successful record matching. Blocking Key Input 1 is mandatory, 2 and 3 are optional. Strict Blocking Key Population. In Strict mode blocking keys are populated only where each input is of sufficient length to match the required input length. This feature avoids unusable blocking keys being created and enables early reporting. Blocking Key Padding. Where a blocking key input has a value that is not of the specified input length – padding can be applied to allow construction of a complete blocking key. It is typical for input fields to be selected that are the Target Fields specified in Normalisation Rules.

Secondary Blocking Key Settings	As with the Blocking Key Structure a further 2 Blocking Keys can also be configured, providing a maximum of 3 Blocking Keys. An example of why this is important is if a source record that should match and merge to another record, may not have the primary blocking key value, but does have other values that match.

3.2 Normalisation Rules

Normalisation Rules standardise field values using template rule types or custom reference data. (Accessed via the Rules Tab within the Target Object).

Rule Type	Output
Lookup	Custom Setting values can be referenced to match an input field value against a Match List held against a Standardised Value. For example, the Country Codes setting holds ISO Country Code values against commonly used country names and abbreviations. The clearMDM package installs a number of exemplar settings with example value populations. Additional Custom Settings can be added to the subscriber org and referenced in Normalisation Rules to apply lookup normalisation against any list of data.
Lookup Blank	No Target Field population if no match made in reference setting.
Replace	Replace lists used in Normalisation Rules of the Replace Type. For example, MatchList, this is a comma-separated list of matching value for which the Name field represents the normalised value e.g., 'Str' should be replaced with 'Street'. Within Setup>Custom Code>Custom Settings, there is 'Replace Values' where values can be added to replace.
Remove End	The Remove End rule type references a Custom Setting for common suffixes, any matches found in the setting are removed from the end of the input field value. This rule type is intended to remove common suffixes applied to company names or surnames. Exemplar Custom Settings are provided with example value populations; such settings should be fully populated before use. As with the lookup rule type additional Custom Settings can be added to the subscriber org.
Remove	This is a Remove Values list used in the Normalisation Rules of the Remove Type. This is a custom list of fields that need setting up if required.
Email Domain	If the input field value matches an email address format, then the email domain is returned. John.smith@hotmail.com => hotmail.com
URL	If the input field value matches a web address (or URL) format then the protocol prefix (http or https) is removed.
Format	All whitespace is removed and the input field value is converted to upper case.
Format Extended	This setting removes umlauts, e.g. Ä --> Ae, ä --> ae, Ö --> Oe, ö --> oe, Ü --> Ue, ü --> ue, ß --> ss
Format Alphanumeric	This setting removes all non-alphanumeric characters for the target field.
Title	Each word in the input field value is set to Title case.
Title Hyphen	Each word in the input field value is set to Title case and spaces are replaced by hyphen characters.
E164	This is an international standard format for phone numbers that includes a country code, area code, and local phone number. This normalisation rule can be used to set a 'phone' field to be standardised.

3.3 Matching Settings

The Matching MDM operation groups Source Records by Blocking Key Values and applies configured matching rules. Identified record matches are recorded in the **Matched Record Pair** object.

Setting Area	Usage
Matching Settings	The **[Blocking Key Match Length]** setting enables specification of how many characters from the blocking key are used in matching; a lower value can significantly increase processing time. This field enables experimentation with blocking key lengths without the necessity to re-normalise records. Blocking Key Auto-adjustment. With larger data sets it is possible for blocking key match values to cover large volumes of records. The Matching MDM operation can be configured to dynamically adjust the length of the overall blocking key used in creating matching groups. This fine-tuning prevents blocking key match values being skipped due to the size of records (Max Records per Group setting). An implementation best practice is to aim for a blocking key length of 10 characters and to use a shorter match length value. This approach provides flexibility to accommodate larger matching groups. The Fuzzy Match threshold specifies the score % above which a record pair is considered a candidate match. Where the **[Check for Matches on Record Creation?]** flag is set, clearMDM applies a strict Matching Check that prevents record creation where matches are found. The **[Matching Check Override Field Name]** setting allows a checkbox formula field to be specified that overrides this behaviour based on record-level conditions. Such conditions can include Profile or User references and field value conditions. For example, it may be necessary to bypass checking for a user that represents an external system integration, or a particular categorisation of record.
Auto Accept Behaviour	The **[Auto Accept Matches?]** setting enables Data Stewards to specify a score % above which record pairs are considered a definite match and stewarding will not be required; the status will be set to Accepted automatically. Candidate record pairs with a score % between the match threshold and auto accept threshold will require stewarding and will retain the Candidate status. An implementation best practice is to implement reporting notifications that proactively notify Data Stewards that candidate matches exist for stewarding.
Large Group Optimisation	Blocking Key Group Size above which only Key and Deterministic Rules are processed.
Matching Manager Apex Class	clearMDM implements the Levenshtein distance (or edit distance) fuzzy matching algorithm by default. The clearMDM product exposes a programmatic interface that enables additional matching algorithms to be encoded in an Apex class within the subscriber org and configured within the Matching settings.

3.4 Matching Rules

Source Records are initially grouped by blocking key values; the next steps applied by the Matching MDM operation is to process the configured field-level rules across the records contained within each record group. These are configured within the Target Object Rules tab.

Rule Type	Logic
Key	A Key match rule indicates that if the 2 Source Records being compared have the same field value, then the match score is 100% (i.e. an Exact Match) and no further matching logic is applied. This rule type is intended for unique identifiers and will match individual values within a pipe delimited text field value. Key matching is the most efficient matching rule type; formula fields can be used to return custom matching tokens that enable highly efficient matching processes; i.e. Email plus Mobile Phone combination = Exact Match.
Key Approximate	Max Score: Percentage of equivalency required. If the 2 records being compared have an approximately equivalent (and nonblank) field value, case insensitive, a 100% match score is assigned for the record-level comparison.
Deterministic	A Deterministic rule indicates that if the 2 Source Records being compared do not have the same field value, then a no-match outcome is recorded and no fuzzy matching logic is applied.
Deterministic Strict	The 2 records being compared must have an exactly equivalent (and non-blank) field value, case insensitive, otherwise a zero % match score is assigned for the record-level comparison.
Exact	Exact matching is applied where Key rules have failed and Deterministic rules have passed. For each configured Exact matching field, the max field score is added to the record level matching score if the field values are not blank and match exactly. If one or more field value is blank the null field score is added, otherwise a zero value is applied.
Fuzzy	Fuzzy matching is applied where Key rules have failed and Deterministic rules have passed. For each configured Fuzzy matching field, a score is calculated and an overall match score returned. The field score equates to the actual edit distance as a percentage of the maximum possible edit distance then applied to the max field score. If either field value is blank then the null field score is applied.
Ignore	The Ignore matching type indicates that the field is required for the Merge MDM Operation (and therefore a mapping is required across data sources) but the Matching MDM Operation will ignore the field. The Ignore type is not mandatory for all Data Sources and is therefore useful for copying Data Source specific field values to the Master Record.

Rule Precedence	The checkbox 'Is Deterministic Rules First?' if TRUE allows for the Deterministic rules to be run before Key rules by the MDM Matching operation.

3.5 Merge Settings

Matched Record Groups produced by the Matching MDM operation are processed by the Merge MDM operation into Master Record create or update events. The **Matched Record Pair** object is where matching groups are created, the [Record Group Id] field indicates the grouping of records.

Setting Area	Usage
Master Field Map	A Custom Field of [Long Text, 5000 size] can be specified to hold the field mapping for a Master Record. The field mapping records the population logic for each (MDM active) field. The information recorded includes the source record the value came from, the data source for the source record (or a Manual Update flag) and a last updated timestamp. The field map is used by the Merge and Synchronisation MDM operations when evaluating whether to update fields on a Master Record in response to Source Record updates.
Ignore Partial Groups	This setting enables Matched Record Groups that contain records at both the Accepted and Candidate status to be skipped. In strict terms only groups that are fully accepted, either via auto-accept logic or via data stewarding, should be merged.
Merge Defaults	Merge Override Values can be added per field (that is active for matching) and enable default values to be specified in cases where the master record field value would otherwise be blank.
Create Master for New Group	A new Master Record will be created for a Matched Record Group when an existing Master Record Cannot be found. If the setting is left false, then an existing record of the Target Object will be used as the Master Record.
Is Attribute Group Only?	If this is set to true, then only fields that are populated within Attribute Groups will be updated to the Master Record.
Merge Master Priority	This is where the priority for which record becomes the Master Record is configured.

3.6 Synchronisation Settings

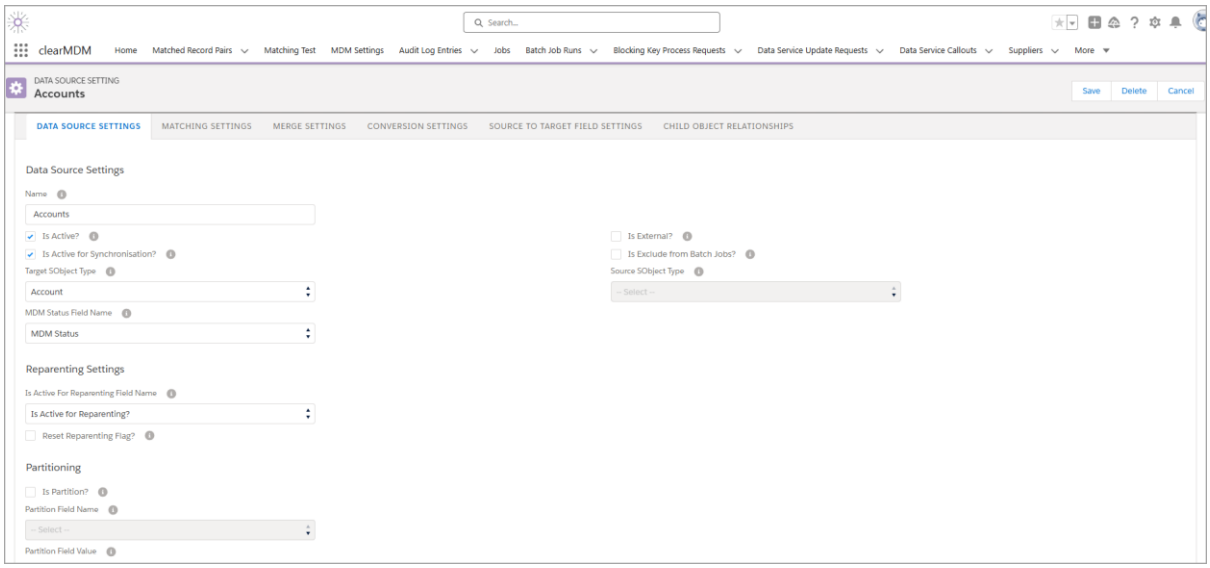
In cases where Source Record to Master Record relationships do not require full re-evaluation whenever the Source Record is updated, the Synchronisation MDM operation can be used to synchronise change (selectively applied based on Attribute Groups or field priority rules) to the Master Record in one-step.

Synchronisation is enabled at the Target Object and Data Source level and requires that Master Records have a valid blocking key and are set with the "Merge Master" MDM Status. Source Records must be set for **[Is Active for Matching?]** =True at the record-level – Synchronisation does not work with Auto Matching.

The Synchronisation MDM operation provides a highly efficient mechanism for the controlled promotion of Source Record changes to the Master Record without incurring the separate steps of match and merge. A typical implementation approach is to synchronise record updates and apply match and merge to new records.

Step 4 - Data Sources

A Data Source is configured to expose Source Records to the Matching and Conversion MDM operations. Each Data Source has distinct configuration that includes a defined Source Object and Target Object. Where the objects are different (i.e. an External Data Source) a field mapping is required to enable cross-object processing. Multiple Data Sources can be configured for both Source Objects and Target Objects.



Note, Matching requires that a Target Object with Normalisation settings is configured for all objects exposed via Data Sources.

Note, for Data Sources not listed on the Data Sources tab (Settings page) the following steps must be completed.

- ✓ Click the Add button.
- ✓ Configure the Data Source settings as described below.

4.1 Data Source Settings.

Setting Area	Usage
Internal / External Data Sources	The **[Is External?]** setting is used to specify an External Data Source, where a Source Object must be specified. Internal Data Sources are those where the Source Records are exposed from the Target Object directly. An External Data Source must specify field mappings from the Source Object data structure to the fields marked as active for matching in Target Object setting definition.
Partition Data Sources	Partition Data Sources enable a single Source Object to be horizontally partitioned through values in a single partition field. All partitions for the same object must share a common designated field and provide a distinct partition value. Before partitions can be created a non-partition Data Source must be configured; this Data Source covers all records outside of the field value conditions specified in partitions. The **[Is Partition?]**, **[Partition Field]** and **[Partition Value]** fields are used to configure a Partition Data Source. Partition Data Source use cases include partitions that provide a high-level grouping of records for controlled matching and partitions that represent different quality grades to which specific configurations are applied.
Check Only Data Sources	Check-only Data Sources support cross-object matching between standard objects. The primary use case for Check Only Data Sources is duplicate checking across Leads, Contacts and/or Person Accounts. For example, Lead creation (file import, UI data entry etc.) can be blocked where the Lead matches to an existing Contact. The 'Add Check Only Data Source' button can be found on the Data Sources settings page.
Reparenting Settings	Setting area to specify the 'Is Active for Reparenting?' Field Name and the option to set the 'Is Active for Reparenting' field on the source records to false by the MDM Matching operation.

4.2 Matching Settings

The Matching MDM operation processes Source Records exposed by Data Sources via auto-match or selective matching configurations.

Setting Area	Usage
Auto Matching	The Matching MDM operation can be applied to all Source Records exposed by the Data Source **[Auto Match Records?]**=True, or on a selective basis where record-level **[Is Active for Matching Field Name?]** field is employed. Where Source Record modifications are integrated from an external source, fine-grained control can be achieved by using the ETL process to set the **[Is Active for Matching Field Name?]** field to True for modified records. In such a model the **[Master Records Active for Matching?]** flag should be set to True to ensure that new/changed Source Records are matched against existing Master Records. The **[Reset Source Record Matching?]** flag instructs the Matching MDM operation to set the record-level flag to false post-processing. It is imperative that this setting is applied for incremental processing to avoid continual re-matching of Source Records. clearMDM can detect when field changes occur that invalidate the record matched state and set the **[Is Active for Matching Field Name?]** field to True to ensure that the next Matching or Synchronisation MDM operation will process the record. This behaviour is set via the **[Check Matching State on Save?]** setting.
Master Record Inclusion	Master Record inclusion (Master Records Active for Matching?) allows Master Records to be selectively exposed to the Matching MDM operation for blocking keys found within the Source Record data set. Matches between Master Records exposed by this logic are prevented; only Source Record to Master Record matching paths are supported. The determination of which records are deemed to be Master Records can be status based (Merge Master, Conversion Master) or controlled by a nominated Checkbox formula field which evaluates to True only on Master Records. This latter approach enables standalone records to be handled as Master Records in respect to Source Record matching. Master Record inclusion is configurable for Internal-type Data Sources only, where the source object is the same as the target object.

4.3 Merge Settings

The Merge MDM operation merges matched Source Records with flexible configuration options in respect to traceability between Source Records and Master Records.

Setting Area	Usage
Transient Mode	The **[Is Transient Mode Enabled?]** flag enables Source Records, that are not designated Master Record status, to be automatically deleted by the Merge MDM operation. This mode is supported by the Merge UI only.
Identifier Copy	The **[Master Record Id Source Field Name]** setting can be used to specify a lookup field on the Source Object that references the Target Object. The Merge MDM operation will populate this lookup field on Source Records with a reference to the Master Record, thereby establishing a persistent, traversable parent-child relationship. Source Record related lists can therefore be added to Master Record page layouts. The **[Identifier Source Field Name]** setting can be used to specify a field on the Source Object for which values will be populated on the specified **[Identifier Target Field Name]** field on the Target Object. Identifiers are concatenated into a pipe character delimited string. Identifier copy enables Source Records to be deleted, with identifier traceability maintained at the Master Record level.

4.4 Source to Target Field Settings

Setting Area	Usage
Field Mappings	External Data Sources where the Source Object is not the same object as the Target Object require a Field Mapping to be defined. For each Target Object field that is active for matching a Source Object field of the same data type must be specified. Cross-object MDM operations apply dynamic field translations in order to match or convert records with different data structures.
Merge Priorities	For each Data Source a relative merge priority can be specified per field to enable fine-grained control over the field population of the Master Record. On a per-field basis the Merge MDM operation will populate the Master Record using the Source Record value that has the highest relative priority; taken from the Data Source to which the Source Record is associated. Note, the logic above is skipped where fields are processed by the Merge or Synchronisation MDM operations during Attribute Group evaluation.

4.5 Child Object Relationships

The Reparenting MDM operation re-parents Child Records using setting values specified per Data Source. This can be as a Batch Job, Immediate or Cloning.

Setting Area	Usage
Internal Data Sources	For Internal Data Sources (where the Source object and Target object are the same) compatible Child Relationships can be re-parented by selecting the Re-parent option. This approach updates the parent field on the Child Record replacing the Source Record Id with the Master Record Id.
External Data Sources	For External Data Sources (where the Source object and Target object are not the same) compatible Child Relationships can be re-parented by specifying a lookup field on the Child Object that references the Target Object. This approach does not impact on the existing parent field on the Child Record that references the Source Record; the only action taken is to update the specified lookup field with the relevant Master Record Id.

Note, Child Records that are not in compliance with the current set of Validation Rules applied to the object cannot be re-parented (the data integrity issue must be corrected manually before updates can be applied irrespective of source (UI, API etc.). To mitigate this scenario a clause can be added to the Validation Rule logic to allow updates to occur where the parent field is changing only (e.g. IF(ISCHANGED(parentField), FALSE, [logic here]).

For further information about Child Object Relationships, please contact support at hello@clearmdm.com.

Step 5 - Validate Matching Settings

The Matching Test function, accessed via a tab accessible in the MDM custom application, enables the application configuration (Target Objects and Data Sources) to be validated and matching rules to be refined through exploratory testing.

5.1 Matching Test Step 1 (Search)

Step 1 requires a search to be performed across Source Records using a simple filter or compound filter conditions applied with and/or logic. The search performed does not apply the configured matching rules, instead a text-based search is employed to gather records with common attributes that may not otherwise match. As the screenshot above shows, records are returned across data sources. The filter field options are limited to those defined as active for matching for the Target Object; as Data Sources must provide field mappings filter conditions can be applied consistently across objects. The default search field can be set via the “Default?” option within the Target Object Settings Fields section.

Once a search has returned results, exactly 2 records should be selected for comparison. Selection takes place via the Select checkbox in the leftmost column. Once 2 records are selected the Next button will be presented; this button takes the user to Matching Test Step 2 (Compare).

Figure 5.2 – Matching Test – Compare

5.2 Matching Test Step 2 (Compare)

Step 2 enables comparison of 2 candidate source records using the matching logic configured for the Target Object (Person Account in the example above). For each record the actual field values for each matching active field is displayed next to the configured matching settings for the field. The Compare button invokes a matching operation which calculates the matching score for the 2 records. The primary purpose of this function is to enable experimentation with the configured field-level matching settings. Once a satisfactory result is achieved the Apply to Settings button can be used to update the Target Object matching settings based on the current setting values.

Note, the 2 records selected for comparison can also be directly merged via the “Merge” button, this capability allows duplicate records that may not share a blocking key to be matched and merged on an ad-hoc basis.

5.3 Find Matches (Optional)

The Find Matches feature is accessible from a custom button added to the packaged page layouts. For custom objects (or standard objects without packaged layouts) a custom button can be created directly within the subscribed org using the format below.

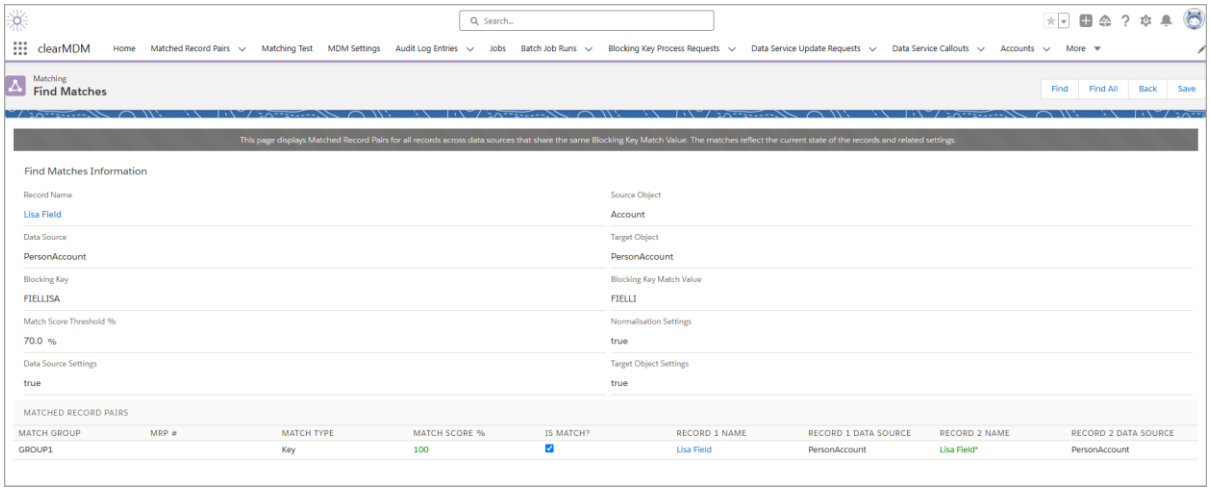
```
/apex/clearmdm__FindMatches?id=[Merge Expression for Record Id – REPLACEME]
```

The Find Matches feature enables real-time matching for an individual record.
“Find” : Matches are returned for the record Blocking Key, that relate to the Source Record only.
“Find All” : Matches are returned for the record Blocking Key, that may not relate to the Source Record.

View Matches displays all Matched Record Pairs within a parent Matched Record Groip. All record pairs share the same Blocking Key Match value and match to at least one other record in the group.

For custom objects (or standard objects without packaged layouts) a custom button can be created directly within the subscribed org using the format below.

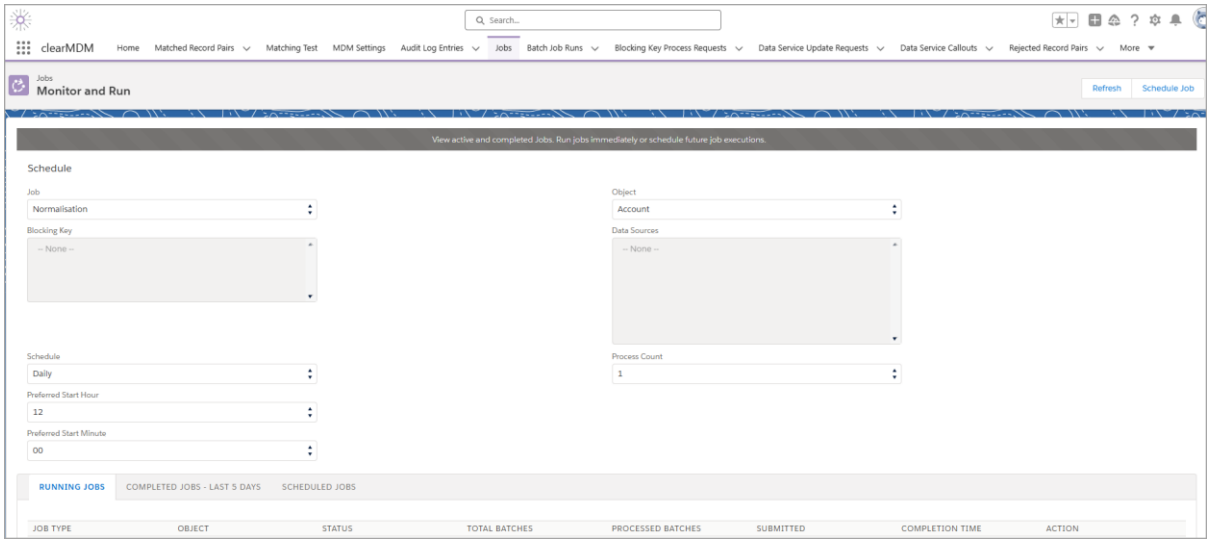
```
/apex/clearmdm__ViewMatches?id=[Merge Expression for Record Id – REPLACEME]
```



Note, the Application Setting **[Selective UI Matching Enabled?]** allows Source Records to be exposed to UI functions such as “Find Matches” without the requirement that the record is **[Is Active for Matching?]**=True.

Step 6 - Run Batch Jobs

The Batch Job Management function, accessed via a tab accessible in the MDM custom application, enables MDM operations to be invoked immediately or on a scheduled basis. A Job is an instance of a MDM operation for a specified Target Object, i.e. Matching for Account. The objects that are listed for selection for an operation are limited to those that are configured and active for that operation.



Note, Jobs will not run concurrently for the same target object.

As the screenshot above shows a Job can be scheduled on a recurring basis to a specified recurrence pattern; Daily, Weekly etc. It is also possible to filter the Data Sources referenced by an individual job; this option allows selective processing to be applied across larger data sets that may have been partitioned using Partition Data Sources.

6.1 Job Chaining

MDM operations have a logical sequence of application; normalisation precedes matching and matching precedes merge for example. To enable efficient automation of MDM processing it is possible to chain jobs together in a seamless manner. Job chaining is specified via Target Object settings; the supported job relationships are listed below.

Child Job	Parent Job(s)
Synchronisation	Normalisation
Matching	Normalisation, Synchronisation
Merge	Matching
Conversion	Matching, Merge
Reparenting	Conversion, Merge
Custom Rollup	Reparenting

6.2 Custom Action Support

MDM Operations can be invoked via Process Builder or the REST API. In the former case a Process must be declaratively defined with an Apex action that references the class [clearmdm__BatchJobRunAction]; the MDM Operation and Target Object parameters are required, the Data Sources and Process Count parameters are optional. Custom Action support enables MDM processing to be incorporated into any process automation logic implemented through Process Builder. The same Custom Action referenced above is exposed via the REST API enabling MDM processing to be invoked by off-platform processing. A typical use case for this capability is where data integration tasks require a mechanism to initiate MDM processing on completion. For example once an ETL tool has finished loading records into Salesforce objects the Normalisation MDM operation can be invoked, which may be chained to the Matching MDM operation to deliver fully automated end-to-end data processing.

Actions for each MDM Operation can also be setup at a transactional lever, i.e., for each Record individually, rather than Batch.

For further information, please contact support at hello@clearmdm.com.

Appendix A – MDM Fields

Label *(illustrative)*	API Name *(illustrative)*	Type *(mandatory)*	Area
Blocking Key	BlockingKey__c	Text(100) (External ID)	Normalisation
Blocking Key Group	BlockingKeyGroup__c	Text(10) (External ID)	Normalisation
Is Active For Conversion?	IsActiveForConversion__c	Checkbox	Conversion
Is Active For Matching?	IsActiveForMatching__c	Checkbox	Matching
Is Active for Reparenting?	IsActiveForReparenting__c	Checkbox	Reparenting
Is Blocking Key Complete?	IsBlockingKeyComplete__c	Checkbox	Normalisation
Is Conversion Master?	IsConversionMaster__c	Checkbox	Conversion
Is Normalised?	IsNormalised__c	Checkbox	Normalisation
Last Conversion Date	LastConversionDate__c	Date/Time	Conversion
Last Matching Date	LastMatchingDate__c	Date/Time	Matching
Last Merged Date	LastMergedDate__c	Date/Time	Merge
Last Normalised Date	LastNormalisedDate__c	Date/Time	Normalisation
Last Synchronisation Date	LastSynchronisationDate__c	Date/Time	Synchronisation
Matching on Save?	MatchingOnSave__c	Checkbox	Matching
MDM Status	MDMStatus__c	Text(25)	All
Normalise on Save?	NormaliseOnSave__c	Checkbox	Normalisation
	Target Object Only		
	Data Source Object Only		
Other Types of Fields:			
Master Record Lookups	Relationship fields that enable Source Records to be related to the Master Record – e.g. Master Contact.		
Normalisation Output Fields	Custom fields added as the target for Normalisation Rules. Examples; [Normalised Company Name], [ISO Country Code], [Email Domain].		
Reparenting Relationship Fields	Lookup relationship fields added to Child Objects to enable reparenting to a Master Record.		
Identifier Target Fields	Text fields added to Target Objects that are populated with a concatenated list of Source Record identifiers.		