AutoMerge User Guide

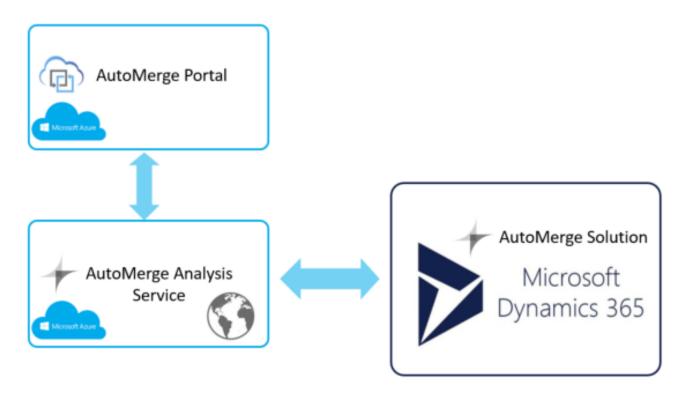
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What Is AutoMerge

AutoMerge consists of 3 parts:



1. AutoMerge Portal (Azure)

Allows you to control the analysis and tagging of duplicates on your timeline. You log in to the AutoMerge Portal to create and submit analysis requests to run immediately or at a future time. You can also update your customer profile and view your matching/ranking rules.

2. AutoMerge Analysis Service (Azure)

Our Azure based service analyzes your Dynamics CRM/365 system for duplicate records and tags them in your CRM.

3. AutoMerge Solution on Dynamics 365/CRM (Online/On-Premise/Partner-hosted) A managed solution you install on your Dynamics 365 that enables you to see and verify the tagged duplicates in custom views and quickly merge them as appropriate.

Since most of your time will be spent with the AutoMerge components within your Dynamics 365/CRM system, we'll describe that in depth first. Then we'll go into how to use the AutoMerge Portal.

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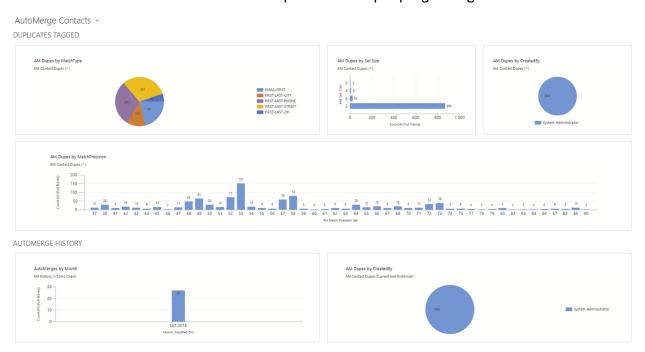
AutoMerge Solution within Dynamics 365



The managed solution is comprised of dashboards, custom views, forms and fields. All these for the Lead, Account and Contact entities as they are the natively "merge-able" entities. There are also the AutoMerge command bar buttons which do the actual work of merging the selected duplicate sets in a view while automatically preserving fields from the merged (loser) records appropriately.

AutoMerge Dashboard

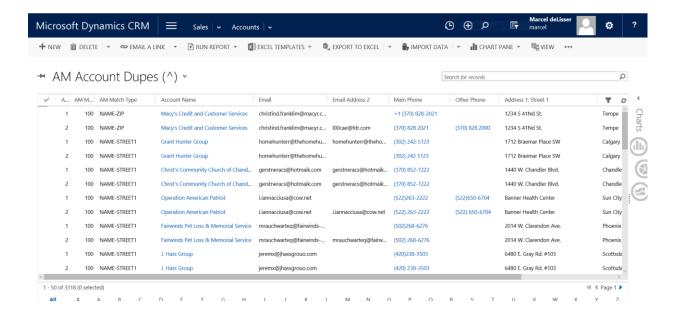
AutoMerge has dashboards for the Lead, Account, and Contact entities that show a high-level view of the duplicate records in the system. The charts show historical and upcoming merges so admins and end users can see how the duplicate cleanup is progressing.



AutoMerging Records

Once your CRM has been analyzed and tagged for duplicate Leads, Accounts and Contacts, you can verify the duplicates by opening the "AM Lead Dupes (^)" view. (or the equivalent Account/Contact view). The "(^)" in the view name means the results are sorted by highest precision to lowest.

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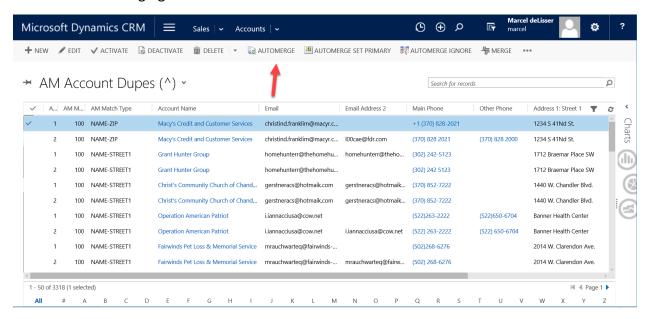
Columns of the Duplicates View:

- 1st column is the Rank field. Rank=1 means that record will "WIN" the pending AutoMerge operation. All Rank>1 records will lose the pending AutoMerge operation. Note you can move a record to the Rank=1 (winner) position using our "AutoMerge Set Primary" button explained later
- **2**nd **column is the Match Precision field.** Once our Azure Cloud analysis service finds your duplicates, it compares the fields across all records of the duplicate set to determine a Precision %. The precision can be as low as 20% (very few fields match across the records) or as high as 100% (all pertinent fields match across the records)
- 3rd column is the Match Type. This column tells you how we first found the match.
 Note that the records of a duplicate set may match in several ways, but this field only tells you one of them (e.g. the first one found)
- 4th N columns. These are fields of your records to compare.
- Add Your Own Columns to Compare. Our view may not have all the fields you wish to compare. We suggest you make a copy of our default view either as a System View (requires System Administrator privileges) or an Advanced Find. Then edit the copy to include the fields you wish to compare across records of the duplicate set.
 - (!) To make sure the duplicate records stay grouped and sorted together, don't change the sort order or remove our AutoMerge columns from any copy you create from our default view

Once you have determined a set of records are indeed duplicates, you can AutoMerge them by choosing one record of the set, and clicking on the AutoMerge button in the Command Bar. No

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matter which record of each set you choose, the set will be AutoMerged according to the ranking set at that time. You may even choose more than one record of the duplicate set, it will not affect how merging occurs.



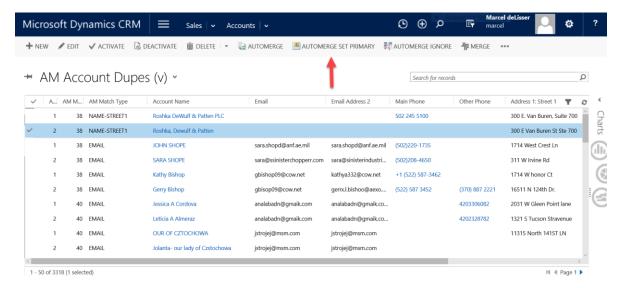
The #1 Ranked record will be the "Winner" and there should always be at least 2 records in a duplicate set. And if there are 3 or more records in the duplicate set, they will be automatically merged in this order: First: #2 merges into #1. Second: #3 merges into #1; Third #4 merges into #1. And so forth.

Choosing many duplicates from different sets will AutoMerge records within each duplicate set. Records from different duplicate sets are NEVER merged with each other even though they may be AutoMerged at the same time. If you choose large numbers of records to AutoMerge at once, you may have to wait several seconds for the merging to complete. This is normal. The CRM's merging process is intensive and our automation runs synchronously which means you wait.

AutoMerge Set Primary

If you would like to change the winner of a duplicate set, simply choose that record and click the "AUTOMERGE SET PRIMARY" button. The chosen record will move to the Rank=1 position in the duplicate set.

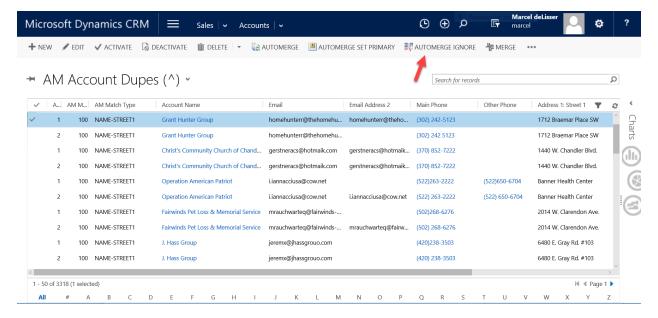
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You can then AutoMerge the resulting set with its newly chosen Winner record.

AutoMerge Ignore

While you are validating the sets of duplicate records, you may determine that one or more records within a duplicate set, or across sets need to be ignored for duplicate analysis. The "AutoMerge Ignore" button can be used on one or more records and removes those records from any current duplicate sets as well as marking those records to be ignored during future analyses.



If you choose to Ignore a record from a 2-record duplicate set, the remaining record will also disappear from view because if the remaining record no longer has a match, it is no longer part of a duplicate set. Disappearing from the duplicates view is different than being "ignored" for all future analysis though.

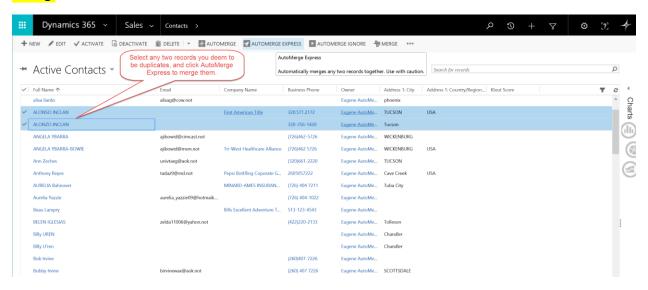
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Note: any previously ignored records can be un-ignored simply by setting their "AM Ignore" field to "false".

AutoMerge Express

Whereas the regular "AutoMerge" button will merge **tagged** duplicate sets, the "AutoMerge Express" button allows you to merge **any** two selected records with a single click, whether they are tagged or not. The caveat is that with AutoMerge Express you cannot control which record will be the Winner. But since fields are preserved from the loser to the winner, this is not a major concern.

Use caution with AutoMerge Express, as it will merge any two records without a confirmation dialog.



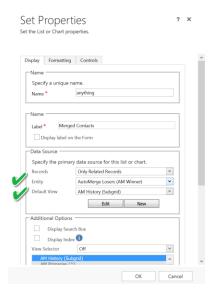
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AutoMerge Sub-grid Customization onto a Form

The AutoMerge form has a sub-grid that shows the loser record (or records if the duplicate set was greater than 2) in a sub-grid. This is helpful for admins and end users who want to see a historical reference of merged records inside of the winner record and there are links from the loser records to the winner. This piece of functionality also makes it easy to perform bulk deletes on loser records if storage space is a concern. The sub-grid can be found by navigating to the AutoMerge form for either Leads, Accounts, or Contacts and scrolling to the middle of the form.



Configure the Merged Records subgrid like this:



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Security

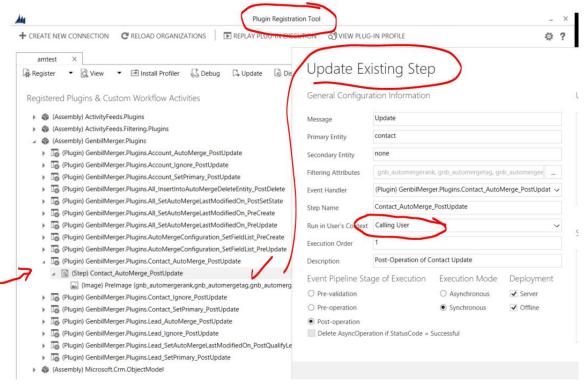
The security privileges required to perform merges in CRM are extensive. To avoid these security issues, we typically ask that only System Administrators perform AutoMerges. However, if this isn't possible and you would like to delegate your AutoMerging to non-SystemAdins, we have designed a way for regular end-users to perform AutoMerges without granting them the System Administrator security role.

Granting non-System Administrators, the rights to perform AutoMerges involves 2 steps:

 Grant the end-user the "AutoMerge Non-Admin User" Role. This role included in the managed solution gives the end-user just enough privs to view the AutoMerge buttons on the command bar and view the AutoMerge entity forms for Lead/Account/Contact.

NOTE #1 ALONE DOES NOT GUARANTEE THE END-USER WILL HAVE ENOUGH PRIVS TO SUCCESSFULLY AUTOMERGE RECORDS, AS THOSE LEVEL OF PRIVS ARE HIGHLY DEPENDANT ON YOUR CRM ENTITY CUSTOMIZATIONS.

2. Modify the "Run in User's Context" of the AutoMerge plugin to a user with System Administrator security role. This gives the end-user System Administrator privs for the sole purpose of AutoMerging. We can do this for you if needed:



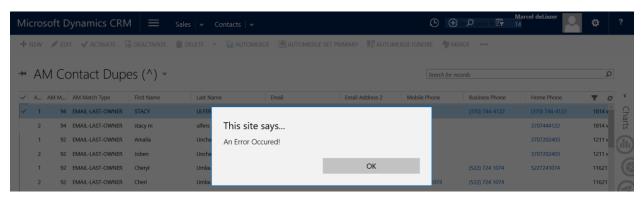
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Errors while AutoMerging

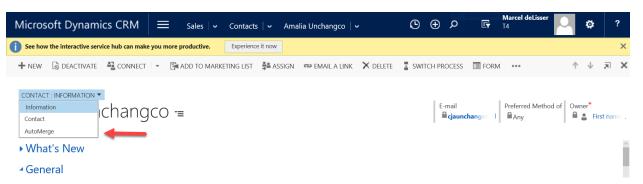
Viewing Details of Generic Errors by using the AutoMerge Form

There are a few situations where errors may occur. The most common are due to missing security privileges needed to perform the merging. See *Security* section above.

It's important to understand when using any of our command bar buttons from the view, the CRM will not return any details from the error. There's no easy way for us to give more error details when they happen in list view. This is the not-so-helpful error you might see:

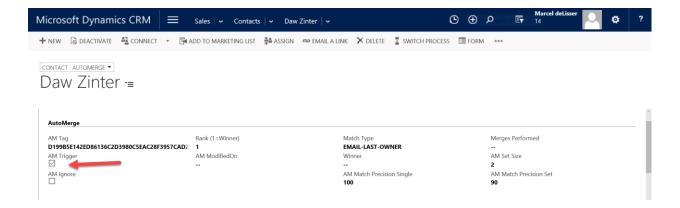


When this happens, you are going to have to trigger the AutoMerge from the form rather than from the list view. Open the first record of the duplicate set (the winner record), and change to the "AutoMerge" form in the upper left of the form:

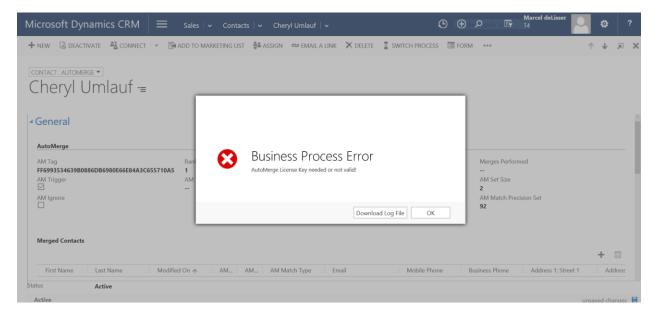


Then, after you can view the record in the "AutoMerge" form, click the "AM Trigger" button on the form and save.

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Now you will see the true reason for the AutoMerge error:



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Errors and possible workarounds:

Error: "Disassociation cannot be performed between an entity of type list and an entity of type contact."

This error appeared in CRM Online version 9.0 and is due to a bug in Microsoft's underlying Marketing List association/disassociation code. This issue only applies to CRM Online. As of October 2018, Microsoft support says the fix will be available in CRM Online version 9.0.2.2605. You can check your version on the main CRM window, click on the cog in the upper right, and choose "About"



If you are not yet on version 9.0.2.2605 yet, we do have a workaround for you for the short-term. Please contact us for details.

Error: "The Entity Cannot Be Updated Because It Is Read-only"

This error will occur if you attempt to merge a record that is associated with an "Active" quote. The reason is that during the merge operation, the Account or Contact link on an Active quote must be changed from the loser Account/Contact to the winner Account/Contact and that is not-allowed because Active quotes are read-only. We suggest you close all active quotes before attempting to merge their related Accounts or Contacts.

Error: "The request channel timed out while waiting for a reply after 00:02:00"

There is a built-in time limit on all plugins of 2 minutes. When an AutoMerge operation is triggered, the plugin may copy various fields from the loser record to the winner. We refer to this as "Field Preservation". This may in turn trigger other plugins to run, which may take longer than the 2 minute limit. When this error occurs it may be remedied by attempting the AutoMerge at a different time of the day. Or more drastically turning off other plugins that are configured on that entity (Lead/Account/Contact) or related entities that are affected due to cascading during the merge process.

This timeout limit can be increased for On-Premise CRM customers, but not for CRM Online customers. If you are using CRM Online, you can ask Microsoft to increase your limit.

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Error: "A validation error occurred. The value of 'customertypecode' on record of type 'contact' is outside the valid range"

When a CRM Admin removes a value from an Optionset, and there are existing records that reference that value, you will have an invalid reference in your data. When you look at a record in the CRM UI that references the now obsolete value of the Optionset, the UI hides the fact that the underlying database is referencing an illegal value. It just shows you an empty field. But the field is not in fact empty. And if you ever change that field on that record again, it gives you the new options for that picklist, you pick one and you go on your merry way. Plugins however aren't so lucky. This platform error makes it look like the plugin is doing something wrong when it isn't.

Here is a link to a PDF that explains this error fully, and how to fix it yourself if you like. https://automerge.net/wp-content/uploads/2017/03/InvalidOptionSetError.pdf

If you get this error while using AutoMerge, contact us for support. We have a tool to find and clear invalid optionset values.

Error: "SecLib::CrmCheckPrivilege failed. Returned hr = -2147220943 on UserId: ffba8bd6-3fc2-e611-80fe-c4346bac7abc and PrivilegeType: Read"

The full error looks like this:

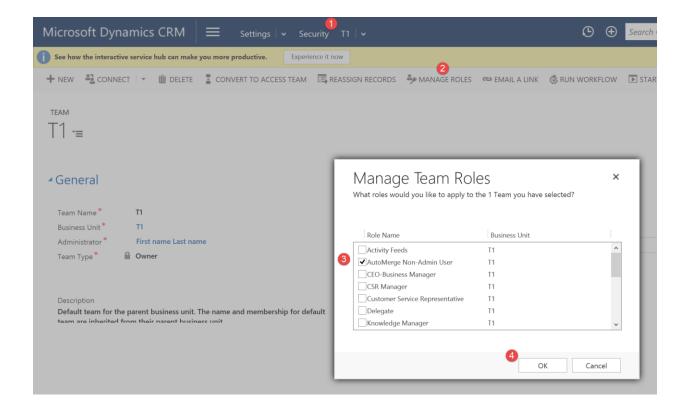
Merging the Loser record into the Winner. (Loser: 46c12f3a-6da6-e411-9405-00155d0f8619, Rank: 5, Winner: d6ce937b-36c5-e611-80f5-fc15b428d1b4)

SecLib::CrmCheckPrivilege failed. Returned hr = -2147220943 on UserId: ffba8bd6-3fc2-e611-80fe-c4346bac7abc and PrivilegeType: Read

This error can happen even when the user doing the AutoMerging has the "System Administrator" role. It is thrown by the platform when an underlying user, owner of a record related to one of the records in the match set (e.g. a parent account of a contact you wish to merge) doesn't have the "CrmCheckPrivilege" priv.

The easiest way to remedy this is to grant the "AutoMerge Non-Admin Role" security role to the Team that is created for each of your Business Units. This will give all users a minimum privs. It is easy to remove this role after the bulk of AutoMerging is complete.

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Error: "The given key was not present in the dictionary"

The full error looks like this:

System.ServiceModel.FaultException`1[[Microsoft.Xrm.Sdk.OrganizationServiceFault, Microsoft.Xrm.Sdk, Version=8.0.0.0, Culture=neutral, PublicKeyToken=31bf3856ad364e35]]: Merging the Loser into Winner. (Loser: 51591306-2684-e711-80fb-5065f38ba4f1, Rank: 3, Winner: 822f62f1-6420-e111-97e1-005056b11eb6) The given key was not present in the dictionary.

The cause of this is related to how AutoMerge preserves fields from the Losing record to the Winning record. See section on "One-time Organization Settings" for more information on how these work. The error is caused when the preservation list has a value in it that has been removed from your customizations. To correct this you must open each of the three preservation list config records and reset them to the defaults.

- 1. As System Administrator, open Advanced Find. Search for "AutoMerge Configuration" records. No filters needed.
- 2. Open the "Preservation Field List" for the entity (Account, Contact or Lead) that is giving the error.
- 3. Replace the entire list of comma-separated fields with the word "all" (minus the double quotes)
- 4. Save-Close the record
- 5. Repeat #2 4 for the "Address Block 1 List" and "Address Block 2 List" records.

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Importing/Updating AutoMerge Managed Solution

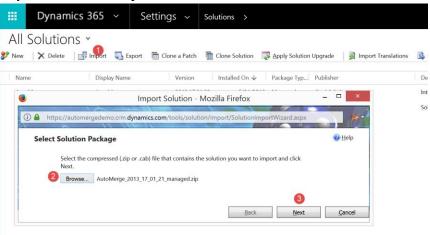
We update the AutoMerge managed solution at least quarterly. Here's where to find the latest solution and how to import it.

1. Download latest AutoMerge Managed Solution

- a. <u>Link for AutoMerge Solution for CRM v2016 thru Dynamics 365</u>
 - or -
- b. Link for AutoMerge Solution for CRM v2013 thru v2015
 - or -
- c. Link for AutoMerge Solution for CRM v2011
- 2. Navigate to Solution Import area of CRM:

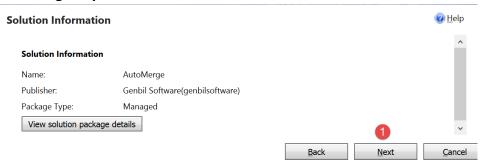


3. Import the solution just downloaded:

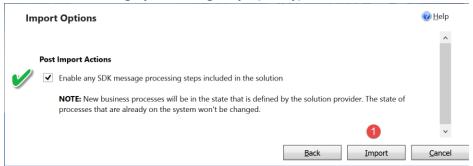


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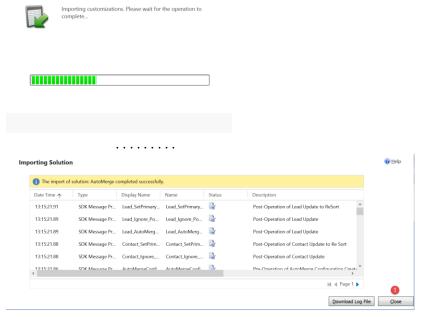
4. Click through import wizard:



5. Enable SDK message processing steps (if any)



6. Wait for success dialog:



Finished!

(there's no need to Publish-all-customizations after importing a Managed Solution)

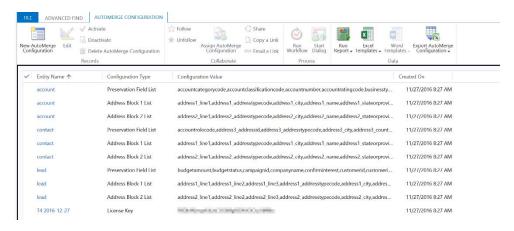
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One-time Organization Settings

Important System Settings to Configure *BEFORE* AutoMerging the first time.

These configuration records will be populated with defaults for you during the first AutoMerge Analysis performed. Any System Administrator may edit them as needed for the Organization. Because these records affect how AutoMerge processing occurs, we ask you **Proceed with Caution.**

As a System Administrator, open Advanced Find and search for "AutoMerge Configuration" records.



- 1. Field Preservation List must be configured. When a duplicate set is AutoMerged our code checks each field in the Field Preservation List. With each field it checks if the Winner(Rank=1) DOES NOT have a value in that field and the Loser (Rank>1) does. If that is the case then that field is copied from the Loser to the Winner during the merge operation.
 - a. To automatically populate the Field Preservation Config record, fill in the entity name (i.e. "Contact"), choose "Preservation Field List" as the type, and enter "all" into the list field and save. "all" should be replaced with all the fields of that entity.
- 2. **Append Field List is optional.** When a duplicate set is AutoMerged our code checks each field in the Append Field List and will concatenate that field from the Losers (Rank>1)in order into the Winner (Rank=1) all separated with the "|" (pipe) character. For example, if the *description* field is configured as an Append Field, and the Winner(Rank=1) has the word "one" as its *description* field, the first loser(Rank=2) has the word "two" as its *description*, and second loser(Rank=3) has the word "three" as its *description*, then after AutoMerging, the Winner will have "one | two | three" as its *description*.
- 3. Address Block [1,2,3] List. Similar to the Field Preservation list when two records are AutoMerged an empty address on the Winner can be populated with the address of the Loser according to this Configurable list.

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Think of the first field on Address Block list as the "representative" field. By default we set the representative field to "address1_street1" because if the street is not populated then it's likely the whole address is useless. If the representative field IS NOT POPULATED on the Winner and IS POPULATED on the loser then all the fields of the Address Block are copied from the Loser to the Winner.

- a. To automatically populate the Address Block Config record, fill in the entity name (i.e. "Contact"), choose "Address Block 1/2/3" as the type, and enter "all" into the list field and save. "all" should be replaced with all the address1/2/3 fields of that entity.
- 4. **License Key.** A valid license key is required for any AutoMerge automation to function. And note that a generic error appearing while attempting to AutoMerge a whole list of duplicates may be due to a Licensing error.

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Using the AutoMerge Portal

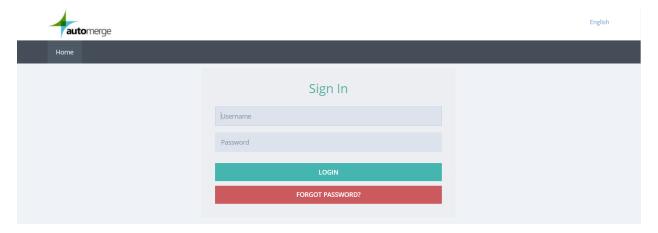


The Portal allows you to manage your AutoMerge subscription. It is intended for customers with a Standard or Premium subscription, and therefore not available to One-time-use customers.

Access

You can manage your Company Profile and AutoMerge requests using our custom-built Portal (AMPortal). Each Customer receives one shared login and password to use the AMPortal. AMPortal credentials must be distributed securely for your protection. You can email amsupport@genbil.com for your login/pw.

AutoMerge Portal URL: https://portal.automerge.net

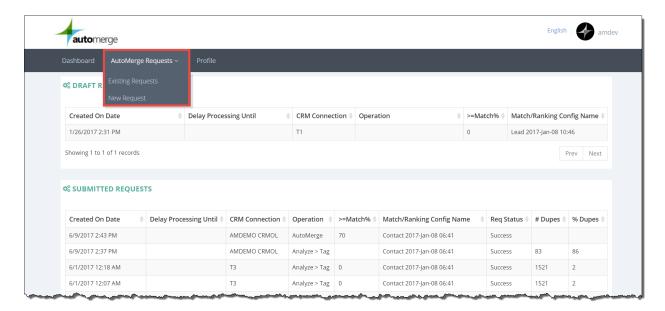


Navigation – Existing Requests

View Existing Requests

After logging in your navigation options should look like this. Choose "AutoMerge Requests" and then "Existing Requests"

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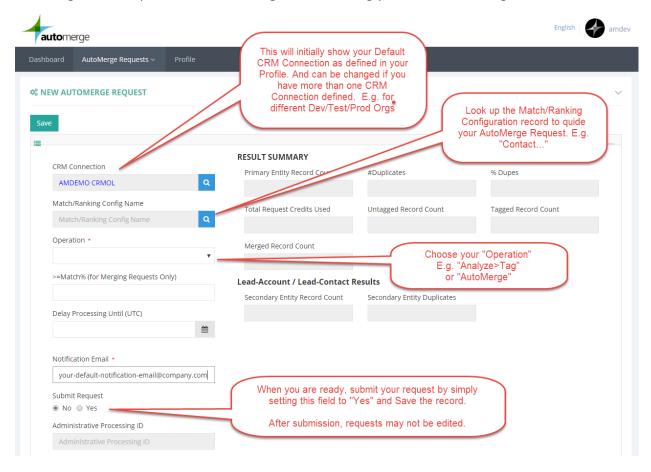


Draft and Submitted Requests are shown in separate lists. You can open Draft requests and edit them and/or submit them. Submitted requests can be opened too but are read-only.

Navigation – New Request

Create New Request

Choosing "New Request" from the navigation will bring you to the following screen:



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When your request has completed processing you will receive an email from admin@automerge.net, be sure to check your Spam/Junk folder. And depending on the size of your data set, the requests may take many hours to complete. You can view a high-level processing status of the request by looking at "Existing Requests"

CAUTION

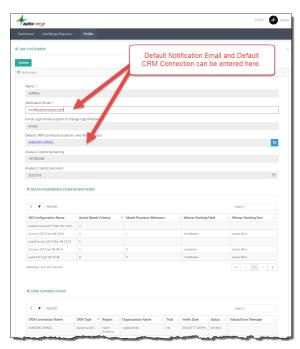
AutoMerging via the Portal is OPTIONAL. You first must submit an "Analyze>Tag" request, let it complete, and validate the tagging results in your CRM before submitting a subsequent "AutoMerge" request.

For AutoMerge Type Requests, the ">=Match" field will default to 80%. This means only the duplicate sets of 80% match precision and higher will be AutoMerged. This is a safety mechanism. You must explicitly set it to lower value if that is your intent.

Genbil is not responsible if you mistakenly AutoMerge more duplicate sets than you intend. Merged CRM Leads/Accounts/Contacts cannot be fully UN-merged.

Navigation - Profile

Set Defaults in your Profile





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