

# iMerge

*Sustainable solutions presented by Computer System Innovations, Inc.*

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*User Guide*

Version 4.4.4

11/15/2018

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## Overview

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### What is iMerge?

iMerge is designed to do what the end user cannot do. That is, merge activities, financial transactions, orders, event registrations, and certification from one record to another. It can optionally delete the name information from the old or “bad” record.

In addition, iMerge is designed to protect you from corrupting the two merged records. For instance, iMerge will warn you if both records have the same subscription and one of them needs to be removed.

iMerge also:

- Will not create duplicate event registrations. It will warn you that it is removing the registration on the “bad” record provided it does *not* have an outstanding balance.
- Can optionally mark the old or “bad” record for deletion
- Supports option of merging IDs fields that exist in other non-iMIS tables
- Has the ability to optionally call a stored procedure at the beginning or end of the merge for unlimited flexibility.
- Can be run in batch mode when mass cleanup is needed.
- Has the ability to search for duplicate records.

### iMerge is Not...

A tool for merging Name and Demographic (user defined table) information.

For instance, iMerge will not “by default” take data from a user defined table such as demographics and move it from one ID to another. You can however call a stored procedure to do this. An example is provided on page 18.

### Cautions with iMerge...

Please note – there is NO UNMERGE procedure!! The merge process involves many different tables and thus cannot be undone.

Also, custom triggers are not supported.

## Basic System Requirements

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The following system specifications are required to successfully run iMerge:

- Windows 7 or higher
- iMIS must be installed to run iMerge
- iMIS 15.2 or higher
- Microsoft .Net Framework 4.0
- SQL Server 2008/2008R2/2012/2014 (or higher)
- UDP 1434 must be open on the SQL Server

## Useful Terms

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<b>Duplicate ID</b>	Record containing duplicate information, record that activities will be merged <b>from</b>
<b>Merge to ID</b>	Record that duplicate ID activity records will be merged <b>to</b>
<b>Record Set</b>	Set of records containing an original record and duplicate record
<b>Single Instance</b>	One record set to be merged

# Installing iMerge for the First Time

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Note: It is best practice for all users to be on the same version of iMerge.

1. Download iMerge form [www.csiinc.com/downloads.aspx](http://www.csiinc.com/downloads.aspx) to your workstation.
  - You will need your CSI Website User Name and password. If you do not have this information, contact [support@csiinc.com](mailto:support@csiinc.com)
2. Unzip the file.

For Win Vista/7/2008, right mouse click on the **setup.exe** and click **Run as Administrator**.

For XP, double click the **setup.exe**.

3. The Setup Wizard will launch. Click **Next**.
4. The License Agreement will display. Select "I accept..." and click **Next**.
5. Verify the default installation folder. Click **Next**.
6. Click **Install** to start the installation. A screen will then show, displaying the progress of the install.
7. A screen will confirm that iMerge has been successfully installed. Click **Finish**.
8. Restart your computer if prompted by the installer.

## About the License Key

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When you first log into iMerge, the license process will attempt to register your license key automatically by calling back to CSI to get your iMIS information. If the information that CSI has on record is accurate then you will not be prompted with any license key information. It will update your license information automatically.

If the process cannot call CSI or the license key information does not check out with what CSI has on record, then you will be prompted to enter a license key manually. You will need to obtain this key by contacting CSI Support. After the license key has been validated and entered, you will be able to use iMerge on your iMIS database. Since the license key is stored in your iMIS database, you will only need to enter this key once per database. Installing iMerge on a new computer will not require you to re-enter your license key.

**Note:** Changing the "Licensed To:" name for iMIS will require a new license key. If the license key detects a change in this, it will follow the same process as above trying to call back to CSI to verify your product information. In most cases, if you are prompted for license information it is likely that CSI does not have your updated iMIS information. Contact CSI at [support@csiinc.com](mailto:support@csiinc.com) with a screen shot of the current iMIS System Setup and a new key will be emailed to you.

1. Log into iMIS as an administrator (manager)
2. Click on File > System Setup in the top toolbar
3. Copy and send to [support@csiinc.com](mailto:support@csiinc.com)

## Using iMerge

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**Note:** iMerge will lock each table briefly as it performs its merge. If you are running iMerge in batch mode you should consider running iMerge after hours.

1. Launch the iMerge application.
2. You will be prompted for a user name and password. You must have a user level of at least **4** in the membership module to use iMerge. If you are unable to log in, contact your system administrator and ask them to increase your privileges in the membership module.
3. Log into iMerge using your iMIS username and password.
  - DNS represents your iMIS 10 ODBC server location.
  - The web server represents your iMIS 15 (and above) application server location
4. The first time you use iMerge a dialogue box will appear asking if you would like iMerge to make changes to iMIS database. Click **OK**.
5. You will then be prompted to enter your SA password. Contact your System Administrator if you do not have this information. Click **OK**.



## iMerge Options

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### Mark for Deletion

Selecting this option will mark the Duplicate ID with a status of **D** when a successful merge is completed. If this option is selected, Delete Duplicate ID will automatically be unselected.

### Delete Duplicate ID

This option will perform a Delete on the Duplicate ID just as iMIS would if you were to delete the record through Customer Portfolio. The deletion occurs after the merge provided there were no errors during the merge. This option cannot be used if the Mark for Deletion option is selected and is not recommended.

### Flowdown Data (Company Name & Address)

This option will flow down name and address fields to child records just as iMIS would if you were to change the CO\_ID on a record. This option should be used when merging two company records together. This option should not be used if you do not want addresses and company names updated for the child records.

### Merge eSeries Community Information

Selecting this option will merge posts from the Duplicate ID to the Merge to ID. Therefore, any posts that belonged to the Duplicate ID will now be shown under the Merge to ID.

### Edit Custom Merge fields

iMerge can merge records from additional tables outside of iMIS such as a custom table for the web, and not just those included within iMIS. As long as the table has a non-unique ID field, iMerge is capable of merging records in it. The tables can be located in any database on your server; they do not need to be part of the same database. **Single-Instance User Defined Tables are not available. However, Multi-Instance User Defined Tables are available for use.**

### Call Stored Procedures (Before Pre-Merge, Beginning of Merge, End of Merge)

You can select a stored procedure to execute Before Pre-Merge Checks, At Beginning of Merge, and At End of Merge. For example, to select a stored procedure to execute before pre-merge checks, click the radio button "Before Pre-Merge Checks", then pick a stored procedure name from the combo box, and then specify a value for each of the parameters. The value template "{Duplicate ID}" and "{Merge To ID}" will be replaced by the actual duplicate ID and merge to ID at run time.

- **Before Pre-Merge Checks:** Prior to beginning a merge, iMerge performs some checks (duplicate subscriptions, registered for the same meeting twice, etc.). If a check fails the merge will not continue. This stored procedure runs BEFORE these checks.
  - Example: A stored procedure that deletes a duplicate subscription.
- **At Beginning of Merge:** The stored procedure runs before the merge, but after the pre-merge checks.
  - Example: A stored procedure that makes sure two IDs that you never want merged are not being merged.
- **At End of Merge:** The stored procedure runs after the merge is complete.
  - Example: A stored procedure that updates a demographic table or sends an email.

IMerg SELECT Stored Procedure

Select the stored procedure you would like to run at the beginning of each merge.  
Select (None) if you do not want to run a stored procedure.

csi\_sp\_MergeWebAccount

When to Execute

☒ Before Pre-Merge Checks ☐ At Beginning of Merge ☐ At End of Merge

Parameter	Type	Value
@DuplicateId	varchar	{Duplicate ID}
@MergeToId	varchar	{Merge To ID}

Save

Cancel

## Using iMerge in Normal Mode (Example):

1. In our database, we currently have a duplicate record for Julie Smith, ID #s 18074 and 20556.

Results	Record History	Activities-All	Calls	Letters	Roster	AR/Cash	Billing	Events	Orders	Certification	Matching Plans	Notification	Relationships
ID	Last Name	First Name	Middle Name	Suffix	Title	Company	City	St/Prov					
18074	Smith	Julie			Vice President, Finance	Opus, Inc.	Chicago	IL					
20556	Smith	Julie	Anderson				Chicago	IL					

2. Both records have activity and financial records associated with them.

ID 18074 Non Member Active Category

Mrs. Julie M Smith Suffix: Vice President, Finance

Company: Opus, Inc. (CM) 333 N Michigan Avenue, Suite 900, Chicago, IL Company Sort: OPUS, INC.

Address: 333 N Michigan Avenue Suite 900 Address 3: Chicago IL 60601-3901 United States

Preferred: Mail Bill Ship Phone: (312) 333-4450 Fax: E-mail: JulieSmith@imisdemo.com

Profile Donor Data Status Notes Picture Financial Solicitor Data Other Salutations Demog

Work Phone: (312) 333-4450 Home Phone: Fax: Toll Free: E-mail: JulieSmith@imisdemo.com Web Address: Alternate ID: Functional Title:

Date	Type	Product Code	Description	Note	Thru Date	Amount	Units	Attachment(s)
7/30/2017	MEETING	TEACHCONF	Music Educators Con			541.90	0	0
5/5/2016	GIFT	LDC11/GALA	Nighttime Tour of Pa			240.00	0	0
4/3/2016	FUNCTION	TEACHCONF/ACAPE	Acapella			12.00	1	0
4/3/2016	FUNCTION	TEACHCONF/ACCMF	Accompaniment			15.00	1	0

ID 20556 Non Member Active Category

Mrs. Julie Anderson Smith Suffix: Member Title

Company: ID: Company Sort:

Address: 333 N Michigan Avenue Suite 900 Address 3: Chicago IL 60601-3901 United States

Preferred: Mail Bill Ship Phone: (312) 333-4450 Fax: E-mail:

Profile Donor Data Status Notes Picture Financial Solicitor Data Other Salutations Demog

Work Phone: (312) 333-4450 Home Phone: Fax: Toll Free: E-mail: julesmith@imisdemo.com Web Address: Alternate ID: 17962 Functional Title:

Date	Type	Product Code	Description	Note	Thru Date	Amount	Units	Attachment(s)
11/1/2018	CALL					0.00	0	0
10/23/2018	GIFT	GEN	General Distribution			100.00	0	0
10/23/2018	DONORCLUB	AMBASSADOR	Ambassador Donor C			0.00	0	0

In this case we need to merge the activities/financial transactions from ID #20556 into ID #18074, call the two specified stored procedures and mark the duplicate ID as Marked for Deletion.

3. Enter the duplicate ID into the field on the left and the ID to keep into the field on the right.
4. Click **Run** to start the merge.

Select IDs to Merge

File Options Tools Help

Duplicate ID

20556

Search For Duplicate ID

Name

SMITH, JULIE

Company/Address

333 N Michigan Avenue  
Suite 900  
Chicago, IL 60601-3901  
UNITED STATES

Member Type

NM

Merge To ID

18074

Search For MergeTo ID

Name

SMITH, JULIE

Company/Address

Opus, Inc.  
333 N Michigan Avenue  
Suite 900  
Chicago, IL 60601-3901  
UNITED STATES

Member Type

NM

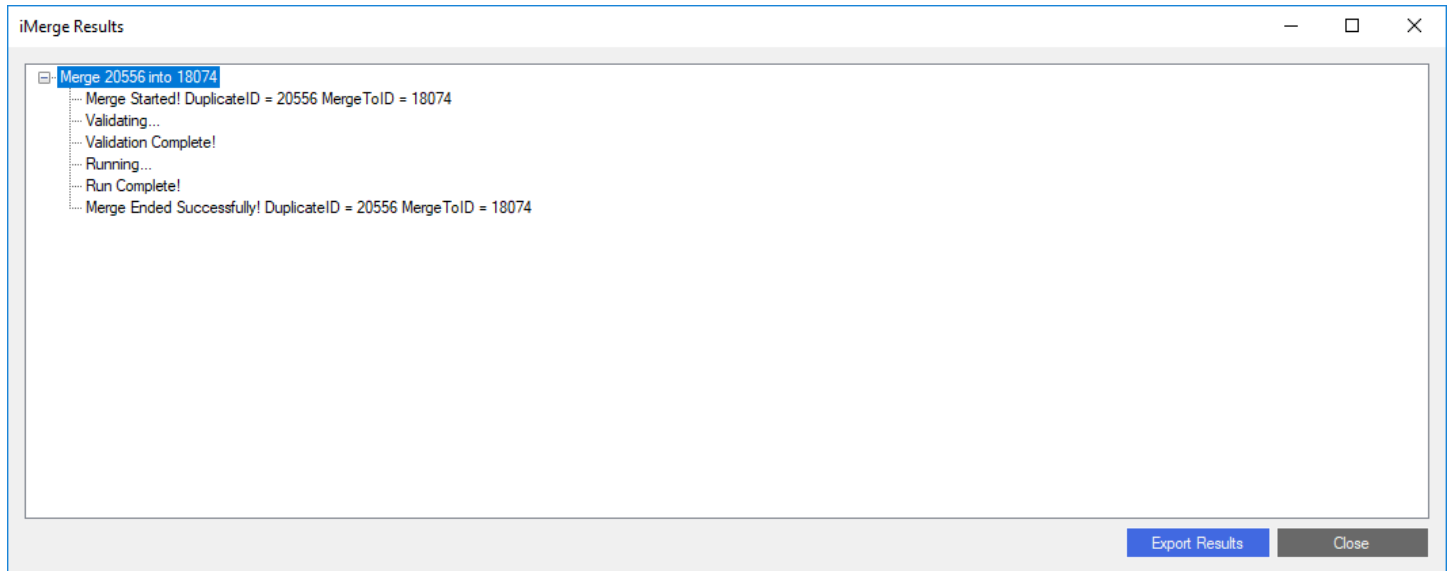
Stored Procedure(s) active

Mark for Deletion is ON

Run Cancel

iMIS Engagement Management System (iMIS: 20.2.64.9193, Sql: ASI-IMIS20263.DEMOIMIS, user: MANAGER)

5. A status report appears.



6. After the merge is complete, only the Merge To record appears in iMIS if Delete Duplicate ID option is turned on. Otherwise, two Name records will still appear but all linked data, such as activities/financial transactions, will be connected to ID 18074. ID 20556 will not have any data connected to it.

Results	Record History	Activities-All	Calls	Letters	Roster	AR/Cash	Billing	Events	Orders	Certification	Matching Plans	Notification	Relationships	C
ID	Last Name	First Name	Middle Name	Suffix	Title	Company	City	St/Prov						
▶ 18074	Smith	Julie			Vice President, Finan	Opus, Inc.	Chicago	IL						

7. Activities from the duplicate record now appear in the correct one.

Results	Record History	Activities-All	Calls	Letters	Roster	AR/Cash	Billing	Events	Orders	Certification	Matching Plans
	Date	Type	Product Code	Description	Note	Thru Date	Amount	Uni			
▶	11/1/2018	CALL			Called in for informat		0.00				
	10/23/2018	GIFT	GEN	General Distribution			100.00				
	10/23/2018	DONORCLUB	AMBASSADOR	Ambassador Donor C			0.00				
	7/30/2017	MEETING	TEACHCONF	Music Educators Con			541.90				
	5/5/2016	GIFT	LDC11/GALA	Nighttime Tour of Pa			240.00				

8. The Change Log in iMIS will reflect the changes made during the merge.

Results	Record History	Activities-All	Calls	Letters	Roster	AR/Cash	Billing	Events	Orders	Certification	Matching Plans	Notification
	Date	User ID	Log Text									
	11/7/2018 11:39:20 AM	MANAGER	Party.Merged: ID 20556 -> ID 18074									
	9/3/2014 2:28:43 PM	BRIANM	Name.TITLE: -> Vice President, Finance									
	11/26/2013 3:33:24 PM	BRIANM	Name.INFORMAL: Julie -> Julie									

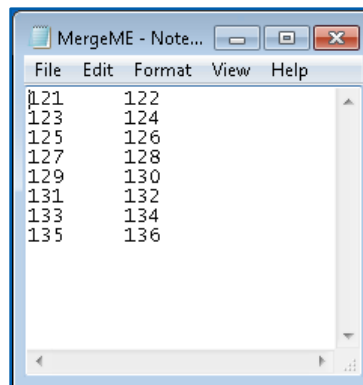
9. If the Duplicate Record is not deleted, the Change Log in iMIS for the Duplicate Record will also reflect the merge:

Results	Record History	Activities-All	Calls	Letters	Roster	AR/Cash	Billing	Events	Orders	Certification	Matching Plans	Notification	Relationshi
	Date	User ID	Log Text										
	11/7/2018 11:39:20 AM	MANAGER	Merged into 18074										
	11/7/2018 11:39:20 AM	MANAGER	Name.STATUS: A -> D										
	3/12/2015 3:15:20 PM	RDELFELD	Name.WORK_PHONE: -> (312) 333-4450										

## Using iMerge in Batch Mode

Use iMerge in batch mode to merge more than one record set.

1. Open the Notepad.exe to create a merge file. (Start Menu> Programs Folder).
2. Type the duplicate ID.
3. Hit the **Tab** key.
4. Type the Merge to ID.
5. Hit **Enter**.
6. Type the next record set, continuing until you have entered all the record sets. Spaces will be ignored.
7. Save the file as merge.txt
8. Close Notepad.



9. Go to the File menu and select "Load Batch Merge File".

Select IDs to Merge

File Options Tools Help

Load Batch Merge File

Exit

Search For Duplicate ID

Name

Company/Address

Member Type

Merge To ID

Search For MergeTo ID

Name

Company/Address

Member Type

Stored Procedure(s) active

Mark for Deletion is ON

Run Cancel

10. Navigate to your merge file that you just created and need to process and click **Open**.

11. A prompt will appear asking if you would like to disable informational messages:

Disable prompts?

Would you like to disable informational prompts during this batch?

If you select "Yes", any merges that require user interaction or confirmation (such as conflicting subscriptions or events) will be automatically rolled back. After the merge, a log will be displayed of each record that did not process because of a prompt.

Yes No

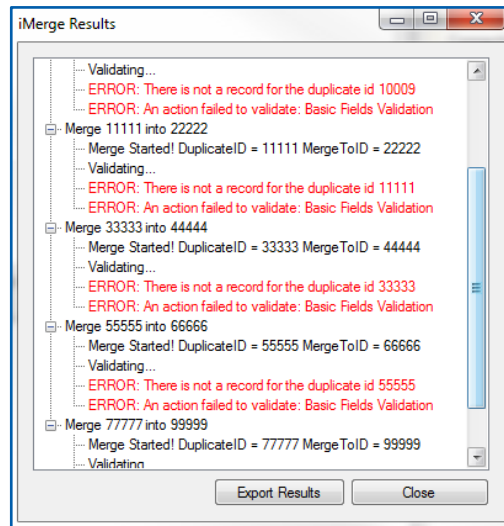


**If you select “Yes”:** Any errors, questions, or prompts will be suppressed, and displayed in a log format at the end of the batch. Any records that have questions or errors will not be altered in the database. When the merge completes, you will then be able to run a second batch with just the problem records in order to address each prompt individually.

**If you select “No”:** The batch will run normally, and any prompts or errors that arise will require user interaction to continue.

Once you select “Yes” or “No”, the batch file will be loaded and processing will begin.

## 12. iMerge will perform the merge and display a Status Report



Errors are reported in the merge results. While the specific merges that fail are identified, the reasons for their failures are not. By using interactive mode to repeat the failed merges you can identify why they failed.

## Custom Records Merge & Multi-Instance Merging

iMerge can merge records from additional tables such as a custom table for the web, and not just those included with iMIS. As long as the table has a non-unique ID field, iMerge is capable of merging records in it. The tables can be located in any database on your server; they do not need to be part of the same database.

**Single-Instance User Defined Tables are not available. However, Multi-Instance User Defined Tables are available for use with this feature.**

Below is a chart illustrating which tables are available for merging:

Table Type	Instance Type	Available in "Custom Fields Merge"
iMIS	Single Instance	Available
iMIS UDT	Single Instance	NOT Available
Non-iMIS	Single Instance	Available
iMIS	Multi Instance	Available
iMIS UDT	Multi Instance	Available
Non-iMIS	Multi Instance	Available

## Using iMerge to Merge Custom Tables

1. After logging into iMerge select Options>Edit Custom Merge Fields from the menu:

Database	Table	ID Field
DEMOIMIS	Demo_Scholarship	ID

Add Custom Field

Database: DEMOIMIS Table: ID Field: Add

Delete Selected Row Close

2. A window will display titled Custom Fields Merge. You may add a new merge field by selecting the **Database**, **Table**, and **ID Field** then click **Add**. Remember, the only iMIS Tables that should be selected here are Multi-Instance User Defined tables (Single Instance User Defined tables are not available here, only through a custom built script, as defined later in this User Guide). Also note that in order for iMerge to properly see other Databases/Tables, both MANAGER\_dbname and IMISUSER\_dbname must have SQL permissions (replace dbname with the name of your database).
3. To Delete a Custom Merge Field select the field and click **Delete Selected Row**.
4. When you are finished click **Close**.

# Calling a Stored Procedure at Different Stages of Merge Process

iMerge is capable of calling custom stored procedures at different stages of merge process. The stored procedures that iMerge calls can do almost anything from writing to a custom table, or even performing changes across multiple databases. Now almost anything that you can do with a stored procedure<sup>1</sup>, iMerge can also perform automatically at the specified stages.

## Using iMerge to Call Stored Procedures at Different Stages of Merge Process

1. After logging into iMerge select Options>Call Stored Procedure from the menu.

A window will come up titled Select Stored Procedure.

SELECT Stored Procedure

Select the stored procedure you would like to run at the beginning of each merge.  
Select (None) if you do not want to run a stored procedure.

csi\_sp\_MergeWebAccount

When to Execute

☐ Before Pre-Merge Checks ☒ At Beginning of Merge ☐ At End of Merge

Parameter	Type	Value
@DuplicateId	varchar	{Duplicate ID}
@MergeToId	varchar	{Merge To ID}

Save Cancel

<sup>1</sup> The stored procedure must work properly when called from within a begin and commit transaction pair. It also must properly roll back when a rollback transaction command is issued.

The combo box at the top will show the currently selected stored procedure. In this case it is "csi\_iMergeProc\_PreMerge", and it will be executed at the beginning of merge. If the combo box says "(none)", then no stored procedure will be called at the specified stage.

To select a different stored procedure, click the combo box at the top and select the stored procedure from the list.

- Only stored procedures that contain at least 2 varchar fields will appear.
- The stored procedures must work properly when in a Begin and Commit transaction pair and must be able to properly roll back.
- The stored procedure may return an error message (This is a new feature in Version 4).
- The stored procedure must have a return code of 0 if it succeeds and a non-zero return code if it fails

Once selected, the bottom area of the window will populate with all the parameters of the stored procedure. You may type whatever you wish for each of the parameters. They will be evaluated like constants. If a parameter is a varchar field, you can assign it either "{Duplicate ID}" or "{Merge To ID}". If you choose to do this, when a merge is run, iMerge will pass the Duplicate ID and/or the Merge to ID to the stored procedure as the parameter you selected.

Using the same approach, you can select a stored procedure to execute Before Pre-Merge Checks and/or At End of Merge as well.

When you are finished, click **Save** to save your work or **Cancel** to go back to the previous settings.

If you click **Save**, iMerge will test the stored procedures by first issuing a begin transaction statement, then running the selected stored procedures using a Duplicate ID of "100" and a Merge To ID of "101" and then issuing a rollback transaction. This will leave the database in the same state as before the stored procedure is called.

**Please note:** If you enable the "Delete Duplicate ID" option, and you choose to execute a stored procedure "At End of Merge", and you use the "{Duplicate ID}" token, a warning will appear on the stored procedure form. This is because the duplicate ID will already be deleted from the database when the stored procedure is run, so the duplicate ID record in the database will no longer exist, which can potentially cause problems for the stored procedure.

## Developing a Stored Procedure iMerge Can Call

The stored procedure must:

- Have At Least 2 varchar fields

This is to narrow the choices of stored procedures that appear in the iMerge's combo box. The 2 varchar fields do not have to use the Merge to ID or the Duplicate ID, they just must be there. If, however, you do want to use the Merge to ID and/or the Duplicate ID, you must make sure the varchar fields are of length 10 or more. This is currently the size of an iMIS ID field so any ID being passed to your stored procedure may be of length 10.

- Return a failure or success code

Returning a failure or success code involves issuing the command “return @int\_variable”. This will return the value in @int\_variable to iMerge. If the return value is 0, iMerge assumes that the stored procedure was successful and commits the transaction. If the stored procedure returns a non-zero value, then the stored procedure encountered a problem and iMerge rolls back the transaction. iMerge will also roll back the transaction if a SQL error is encountered by iMerge when it calls the stored procedure.

- Return a detailed failure error message to the user

When iMerge identifies a return value that is 0, it will roll back the transaction and can now give the user a useful and detailed message of why this occurred. Declare an error message variable (@ErrorMessage) of varchar(255). Then set the variable when you receive an error in your procedure. Simply perform a “Select @ErrorMessage” then “Return @ErrorCount”. This will return the error message to iMerge to communicate to the user.

- Run inside a transaction and be able to fully roll back

iMerge calls all stored procedures after calling a begin transaction statement. This means that the stored procedure must be able to work inside a transaction. It also means that creating new tables, truncating tables, and other commands that do not perform logging are off limits as they will not roll back correctly.

- The Stored Procedure Must **NOT** Return Any Recordsets (This does not include the error message from above.)

This means that it must not do any unnecessary select statements. The stored procedure can open cursors, perform “Insert Into (...) Select ...” and execute other similar statements. It must not, however, do select statements that return recordsets. You can tell if your stored procedure is returning recordsets by running it in query analyzer and looking at the output. If you see output that looks similar to the output you see when you simply type a select statement, your stored procedure is returning one or more recordsets

## Sample Stored Procedures

Below is a sample stored procedure. This procedure performs three distinct operations:

- A. Keeps the oldest join date of the two merged records
- B. Keeps the most recent paid thru date of the two merged records
- C. Moves the spouse name (a user defined field, you may or may not have) from the duplicate record to the merge to record, if the merge to record does not have a spouse.
- D. Add an appropriate Name Log entry, for each of the 3 updates listed above (Note: The below sample script... CSI\_SP\_for\_iMerge, is broken down below over the next several pages of this user guide. It is, however, a single script.)

```

IF EXISTS (SELECT * FROM sys.objects WHERE object_id = OBJECT_ID(N'[dbo].[csi_sp_for_iMerge]')
AND type in (N'P', N'PC'))
    DROP PROCEDURE [dbo].[csi_sp_for_iMerge]
GO

CREATE PROCEDURE [dbo].[csi_sp_for_iMerge]
    @DuplicateID AS VARCHAR(10),
    @MergeToID AS VARCHAR(10)
AS
    DECLARE @ErrorCount AS INT = 0

    -----
    -- Keep the OLDEST Join Date of the two records.
    INSERT dbo.Name_Log(DATE_TIME, LOG_TYPE, SUB_TYPE, USER_ID, ID, LOG_TEXT)
    SELECT
        DATE_TIME=GETDATE(),
        LOG_TYPE='CHANGE',
        SUB_TYPE='CHANGE',
        USER_ID=CONVERT(VARCHAR(60), ISNULL(OBJECT_NAME(@@PROCID), 'csi_sp_for_iMerge')),
        m.ID,
        LOG_TEXT=CONVERT(VARCHAR(255), 'Name.JOIN_DATE:
'+ISNULL(CONVERT(VARCHAR(10), m.JOIN_DATE, 101), '')+' ->
'+ISNULL(CONVERT(VARCHAR(10), d.JOIN_DATE, 101), ''))
    FROM dbo.Name m, dbo.Name d
    WHERE m.ID = @MergeToID
    AND d.ID = @DuplicateID
    AND d.JOIN_DATE IS NOT NULL
    AND ISNULL(m.JOIN_DATE, CONVERT(DATETIME, '17530101')) >
    ISNULL(d.JOIN_DATE, CONVERT(DATETIME, '17530101'))

    UPDATE m
    SET JOIN_DATE = d.JOIN_DATE
    FROM dbo.Name m, dbo.Name d
    WHERE m.ID = @MergeToID
    AND d.ID = @DuplicateID
    AND d.JOIN_DATE IS NOT NULL
    AND ISNULL(m.JOIN_DATE, CONVERT(DATETIME, '17530101')) >
    ISNULL(d.JOIN_DATE, CONVERT(DATETIME, '17530101'))

    SET @ErrorCount = @ErrorCount + @@ERROR -- track errors

    -----

```



```
-- Part 2 of csi_sp_for_iMerge

-- Keep the MOST RECENT Paid Thru of the two records.
INSERT dbo.Name_Log(DATE_TIME, LOG_TYPE, SUB_TYPE, USER_ID, ID, LOG_TEXT)
SELECT
    DATE_TIME=GETDATE(),
    LOG_TYPE='CHANGE',
    SUB_TYPE='CHANGE',
    USER_ID=CONVERT(VARCHAR(60), ISNULL(OBJECT_NAME(@@PROCID), 'csi_sp_for_iMerge')),
    m.ID,
    LOG_TEXT=CONVERT(VARCHAR(255), 'Name.PAID_THRU:
'+ISNULL(CONVERT(VARCHAR(10), m.PAID_THRU, 101), '')+' ->
'+ISNULL(CONVERT(VARCHAR(10), d.PAID_THRU, 101), ''))
FROM dbo.Name m, dbo.Name d
WHERE m.ID = @MergeToID
AND d.ID = @DuplicateID
AND ISNULL(m.PAID_THRU, CONVERT(DATETIME, '17530101')) <
ISNULL(d.PAID_THRU, CONVERT(DATETIME, '17530101'))

UPDATE m
SET PAID_THRU = d.PAID_THRU
FROM dbo.Name m, dbo.Name d
WHERE m.ID = @MergeToID
AND d.ID = @DuplicateID
AND ISNULL(m.PAID_THRU, CONVERT(DATETIME, '17530101')) <
ISNULL(d.PAID_THRU, CONVERT(DATETIME, '17530101'))

SET @ErrorCount = @ErrorCount + @@ERROR -- track errors
```

```
-- Part 3 of csi_sp_for_iMerge

-----
-- Example of taking information in a demographic table and moving it
-- if it does not exist on the ID we are keeping.
-- This would have to be done for each field in the demographics table -- if desired
INSERT dbo.Name_Log (DATE_TIME, LOG_TYPE, SUB_TYPE, USER_ID, ID, LOG_TEXT)
SELECT
    DATE_TIME=GETDATE(),
    LOG_TYPE='CHANGE',
    SUB_TYPE='CHANGE',
    USER_ID=CONVERT(VARCHAR(60), ISNULL(OBJECT_NAME(@@PROCID), 'csi_sp_for_iMerge')),
    m.ID,
    LOG_TEXT=CONVERT(VARCHAR(255), 'Name_Demo.SPOUSE: '+m.SPOUSE+' -> '+d.SPOUSE)
FROM dbo.Name_Demo m, dbo.Name_Demo d
WHERE m.ID = @MergeToID
    AND d.ID = @DuplicateID
    AND m.SPOUSE <= ' '
    AND d.SPOUSE > ' '

UPDATE m
SET SPOUSE = d.SPOUSE
FROM dbo.Name_Demo m, dbo.Name_Demo d
WHERE m.ID = @MergeToID
    AND d.ID = @DuplicateID
    AND m.SPOUSE <= ' '
    AND d.SPOUSE > ' '

SET @ErrorCount = @ErrorCount + @@ERROR -- track errors

RETURN @ErrorCount -- Returning anything other than 0 will rollback all transactions
GO

-- Grant execution permission to script
GRANT EXECUTE ON [dbo].[csi_sp_for_iMerge] TO [IMIS] AS [dbo]
GO
```

Below is another sample stored procedure. This procedure performs distinct operations allowing you to call two stored procedures at once.

```
-- Remove existing main script definition
DROP PROCEDURE [dbo].[csi_sp_for_iMerge_Main]
GO
-- Create main stored procedure to be called by iMerge
CREATE PROCEDURE [dbo].[csi_sp_for_iMerge_Main]
    @DuplicateID as varchar(10), @MergeToID as varchar(10)
AS
DECLARE @ErrorCount as int; SET @ErrorCount = 0

-- Output information message
PRINT('Running script: csi_sp_for_iMerge_Main')

-- Execute 1st secondary script(s) below...
EXECUTE @ErrorCount = [dbo].[csi_sp_for_iMerge_First] @DuplicateID, @MergeToID
-- Check error count returned by secondary script
IF @ErrorCount <> 0
BEGIN
    RAISERROR('Error in script: csi_sp_for_iMerge_First',16,1)
END
ELSE
BEGIN
    -- Execute 2nd secondary script(s) below...
    EXECUTE @ErrorCount = [dbo].[csi_sp_for_iMerge_Second] @DuplicateID, @MergeToID
    -- Check error count returned by secondary script
    IF @ErrorCount <> 0
    BEGIN
        RAISERROR('Error in script: csi_sp_for_iMerge_Second',16,1)
    END
END

END

RETURN @ErrorCount -- Returning anything other than 0 will rollback all transactions
GO
-- Grant execution permission to main script
GRANT EXECUTE ON [dbo].[csi_sp_for_iMerge_Main] TO [IMIS] AS [dbo]
GO
```

(Main stored procedure to be called by iMerge)

```
-- Remove existing secondary script definition
DROP PROCEDURE [dbo].[csi_sp_for_iMerge_First]
GO
-- Create secondary stored procedure to be called by main script
CREATE PROCEDURE [dbo].[csi_sp_for_iMerge_First]
    @DuplicateID as varchar(10), @MergeToID as varchar(10)
AS
DECLARE @ErrorCount as int; SET @ErrorCount = 0

-- Output information message
PRINT('Running script: csi_sp_for_iMerge_First')

-- TODO: Add your custom code here below
SELECT @ErrorCount = @ErrorCount + @@ERROR -- track errors

RETURN @ErrorCount -- Returning anything other than 0 will rollback all transactions
GO
-- Grant execution permission to secondary script
GRANT EXECUTE ON [dbo].[csi_sp_for_iMerge_First] TO [IMIS] AS [dbo]
GO
```

(Secondary stored procedure to be called by main script)

```
-- Remove existing secondary script definition
DROP PROCEDURE [dbo].[csi_sp_for_iMerge_Second]
GO
-- Create secondary stored procedure to be called by main script
CREATE PROCEDURE [dbo].[csi_sp_for_iMerge_Second]
    @DuplicateID as varchar(10), @MergeToID as varchar(10)
AS
DECLARE @ErrorCount as int; SET @ErrorCount = 0

-- Output information message
PRINT('Running script: csi_sp_for_iMerge_Second')

-- TODO: Add your custom code here below
SELECT @ErrorCount = @ErrorCount + @@ERROR -- track errors

RETURN @ErrorCount -- Returning anything other than 0 will rollback all transactions
GO
-- Grant execution permission to secondary script
GRANT EXECUTE ON [dbo].[csi_sp_for_iMerge_Second] TO [IMIS] AS [dbo]
GO
```

(Another secondary stored procedure to be called by main script)

Below is another example that shows you how to return a detailed error message to your user from a stored procedure:

```
-- Remove existing script definition
DROP PROCEDURE [dbo].[csi_sp_TestReturnError_iMerge]
GO
-- Create stored procedure to be called by iMerge
CREATE PROCEDURE [dbo].[csi_sp_TestReturnError_iMerge]
    @DuplicateID as varchar(10), @MergeToID as varchar(10)
AS
DECLARE @ErrorMessage varchar(225), @ErrorCount int
SET @ErrorMessage = ''
SET @Errorcount = 0

-- Pre-merge test
SELECT @ErrorMessage=
    CASE @MergeToId
        WHEN '200' THEN 'You cannot merge to this ID'
    ELSE ''
END

IF DATALENGTH(@ErrorMessage) > 1
BEGIN
    SELECT @Errorcount = 10
    RAISERROR(@ErrorMessage,16,1)
END

RETURN @ErrorCount -- Returning anything other than 0 will rollback all transactions
GO
-- Grant execution permission to script
GRANT EXECUTE ON [dbo].[csi_sp_TestReturnError_iMerge] TO [IMIS] AS [dbo]
GO
```

## Transfer User Credentials (OPTIONAL)

Sometimes it might be necessary to transfer a user's login credentials from one record to another. The following steps will allow you to accomplish this. It will move the user name and password from the Duplicate ID to the Merge To ID if the last login date/time is NEWER on the Duplicate ID)

1. Click on the **Options** menu and select **Call Stored Procedure**.
2. Select the stored procedure: `csi_sp_MergeWebAccount`. Then select "At End of Merge" for When to Execute. Finally, select the Duplicate ID and Merge To ID parameter values. Once you hit Save, you are ready to run the merge of your records.

SELECT Stored Procedure

Select the stored procedure you would like to run at the beginning of each merge.  
Select (None) if you do not want to run a stored procedure.

csi\_sp\_MergeWebAccount

When to Execute

☐ Before Pre-Merge Checks ☐ At Beginning of Merge ☒ At End of Merge

Parameter	Type	Value
@DuplicateId	varchar	{Duplicate ID}
@MergeToId	varchar	{Merge To ID}

Save

Cancel

# Duplicate Finder

Duplicate Finder is a tool to aid the user in searching for and merging potential duplicate records.

To launch the Duplicate Finder tool, select it from the Tools dropdown menu of your main iMerge screen.

## Profile Overview

Duplicate searches are done by first creating a profile, made up of 5 settings:

1. **Find List Maximum** - How many potential duplicates to return. '0' will return all potential duplicates.
2. **Find List Fields** - The iMIS database table and fieldnames to display in the result grid.

Example: Name.ID, Name.LAST\_NAME, Name.FIRST\_NAME, Name.COMPANY, Name.CITY, Name.STATE\_PROVINCE

The above will list the individuals' ID, last name, first name, company, city and state/province.

3. **Duplicate Record Check Formula** - A syntactically correct SQL expression containing iMIS database table and fieldnames used to determine potential duplicates.

Example: SUBSTRING(Name.ZIP,1,5) + (CASE WHEN Name.LAST\_NAME<>" THEN (SUBSTRING(Name.LAST\_NAME,1,4) + SUBSTRING(Name.FIRST\_NAME,1,1)) ELSE SUBSTRING(Name.COMPANY,1,5) END)

The default formula is the Duplicate Record Check Formula defined in iMIS.

4. **Check For Foreign Characters** - Checking this option causes the Duplicate Finder query engine to check for foreign characters in the data returned by the Duplicate Record Check Formula and convert them to their English alphabet equivalent before determining if a duplicate exists. Foreign characters are typically those that contain a diacritic mark, like a tilde, apostrophe, caret or umlaut.

Examples: à, è, ì, ò, ù, â, ê, î, ô, û, ã, ñ, õ, ä, ë, ï, ö and ü.

**IMPORTANT NOTE:** The foreign character check/conversion can be a very time consuming operation and may significantly increase the search run time. If your iMIS data does not typically contain foreign characters, it is recommended that this option be unselected. If you choose to select this option, you may need to increase the Connection Timeout option.

5. **Duplicate Record Filter Formula** - A syntactically correct SQL clause containing iMIS database table and fieldnames used to include or exclude records from being searched.

Example: Name.State\_Province <> 'TX'

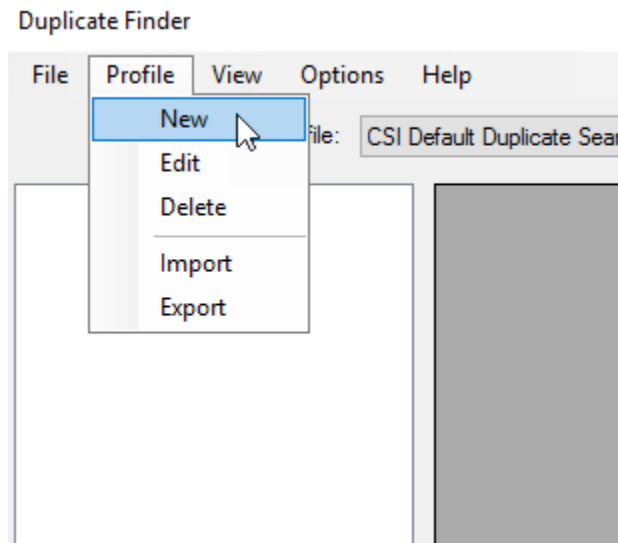
The above would exclude individuals whose primary address has a state/province of "TX".

Example: Name.MEMBER\_TYPE IN ('A','B')  
AND Name.STATUS = 'A'  
AND Name.PAID\_THRU >='1/1/2014'

The above would only include member types A and B, with Status = A, whose Paid Thru date is greater than or equal to 1/1/2014.

### Creating a New Profile

1. Click on Profile > New.





2. Give the profile a name and fill in the profile's five settings, as outlined in [Profile Overview](#). You may use the standard iMIS internal duplicate formula by clicking **Default**.

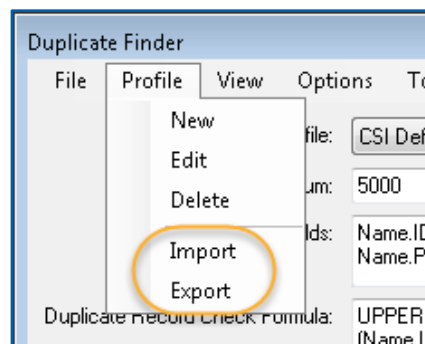
Click **Save** to save the profile to the database for future use.

When not in **New** or **Edit** mode, you may select a profile from saved profiles by selecting one from the dropdown.

To edit an existing profile, select an existing profile, then select Profile > Edit. Make the desired changes and click **Save**.

To delete an existing profile, select an existing profile, then select Profile > Delete. You will be prompted to confirm your decision to delete the profile.

You may import/export a single set of profile settings from/to an XML file by selecting either Import or Export from the Profile menu item. Note: When importing settings, you should first start a **New** profile, give it a name, import the settings, then **Save** the profile.



To run a profile to check for duplicates, click **Find duplicates**.

Duplicate Finder

File Profile View Options Help

Duplicate Profile: CSI Default Duplicate Search [-] (Hide details) **Find duplicates**

Find List Maximum: 5000

Find List Fields: Name.ID, Name.FULL\_NAME, Name.TITLE, Name.COMPANY, Name.Address.ADDRESS\_1, Name.MEMBER\_TYPE, Name.PREVIOUS\_MT, Name.LAST\_FIRST, Name.EMAIL, Name.DATE\_ADDED, Name.LAST\_UPDATED, Name.MT\_CHANGE\_DATE, Name.Address.LAST\_UPDATED, Name.PAID\_THRU,

Duplicate Record Check Formula: UPPER((SUBSTRING(Name.ZIP,1,5) + (CASE WHEN Name.LAST\_NAME<>" THEN (SUBSTRING(Name.LAST\_NAME,1,4) + SUBSTRING(Name.FIRST\_NAME,1,1)) ELSE SUBSTRING(Name.COMPANY,1,5) END)))

Check For Foreign Characters: ☐

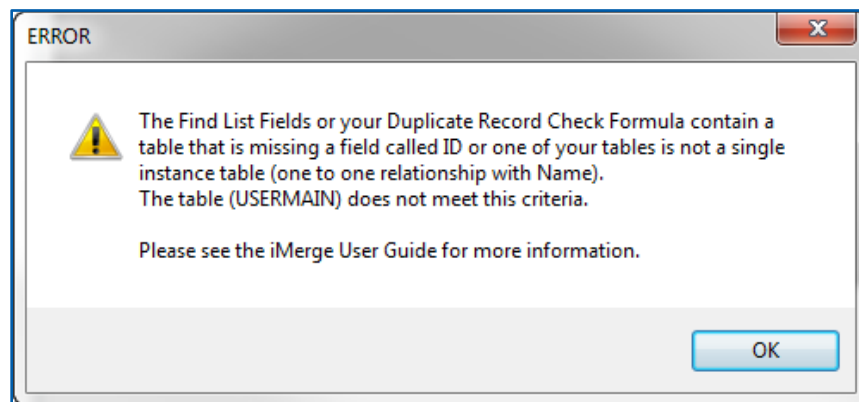
Duplicate Record Filter Formula: NOT (Name.STATUS LIKE 'D%')

Save Save as Cancel Default

If the Find List Fields, Duplicate Record Check Formula or Duplicate Record Filter Formula entry is invalid you will receive an error message.

To hide and show the settings for a profile, click the [-] and [+] buttons, respectively.

**Note:** If you receive the error below, this means you have or are attempting to include a table that either does not contain a field called "ID" (i.e. USERMAIN) or a multi-instance table. The error will identify those tables which must be removed. The following section includes instructions on how to include this information by creating a view.



## Using Views with Duplicate Finder

The 'Find List Fields' and 'Duplicate Record Check Formula' area of Duplicate Finder, can include any Table or View in iMIS, that meets the following criteria:

- 1) All tables must be Single Instance. Any Multi Instance table used (i.e. Activity) will greatly skew the results.
- 2) You cannot include a table that does not have a field called ID, nor one that is Multi-Instance.

Table UserMain, for instance, has an ID field in it, but it's called ContactMaster – therefore, inclusion of this table in Duplicate Finder will result in an error. A valid workaround would be to create a VIEW of such a table, alias the field as ID, then the use the View in the 'Find List Field' or 'Duplicate Record Check Formula'.

Building on this logic, one could create a View to use with Duplicate Finder, that might greatly assist with determining which record to keep. Below is an example of such a view, that clients have found helpful (Note: the view can be called whatever is dictated by business rules):

```
Create view VCSI_Name_Counts as

SELECT      N.ID, N.FULL_NAME
            , ISNULL(S.Count_SubscriptionsTable,0) AS
Count_SubscriptionsTable
            , ISNULL(A.Count_ActivityTable,0) AS Count_ActivityTable
            , ISNULL(C.Count_Committees,0) AS Count_Committees
            , ISNULL(T.Count_TransTable,0) AS Count_TransTable
            , ISNULL(O.Count_OrdersTable,0) AS Count_OrdersTable
            , '' AS [Fundraising?], '' AS [Orders?], '' AS [Events?]
FROM      Name AS N
LEFT JOIN ( SELECT      ID, COUNT(*) AS Count_SubscriptionsTable
                FROM      Subscriptions
                GROUP BY ID) AS S ON N.ID = S.ID
LEFT JOIN ( SELECT      ID, COUNT(*) AS Count_ActivityTable
                FROM      Activity
                GROUP BY ID) AS A ON N.ID = A.ID
LEFT JOIN ( SELECT      ID, COUNT(*) AS Count_Committees
                FROM      Activity
                WHERE     ACTIVITY_TYPE = 'COMMITTEE'
                GROUP BY ID) AS C ON N.ID = C.ID
LEFT JOIN ( SELECT      ST_ID, COUNT(*) AS Count_TransTable
                FROM      Trans
                GROUP BY ST_ID) AS T ON N.ID = T.ST_ID
LEFT JOIN ( SELECT      ST_ID, COUNT(*) AS Count_OrdersTable
                FROM      Orders
                WHERE     STAGE = 'COMPLETED'
                GROUP BY ST_ID) AS O ON N.ID = O.ST_ID
```

## Basic Operations

Once you have returned a set of potential duplicates, you may perform the following operations.

Duplicate Finder

File Profile View Options Help

Duplicate Profile: CSI Default Duplicate Search [-] (Hide details) Find duplicates

Find List Maximum: 5000

Find List Fields: Name.ID, Name.FULL\_NAME, Name.TITLE, Name.COMPANY, Name.Address.ADDRESS\_1, Name.MEMBER\_TYPE, Name.PREVIOUS\_MT, Name.LAST\_FIRST, Name.EMAIL, Name.DATE\_ADDED, Name.LAST\_UPDATED, Name.MT\_CHANGE\_DATE, Name.Address.LAST\_UPDATED, Name.PAID\_THRU,

Duplicate Record Check Formula: UPPER((SUBSTRING(Name.ZIP,1,5) + (CASE WHEN Name.LAST\_NAME<>" THEN (SUBSTRING(Name.LAST\_NAME,1,4) + SUBSTRING(Name.FIRST\_NAME,1,1)) ELSE SUBSTRING(Name.COMPANY,1,5) END)))

Check For Foreign Characters: ☐

Duplicate Record Filter Formula: NOT (Name.STATUS LIKE 'D%')

Save Save as Cancel Default

12 duplicate(s) found.

- 1050VERSA (2)
- 3000RYUM (2)
- 55347BRICA (2)
- 60601SMITJ (3)
- 68108JONES (2)
- 75243FORSL (2)
- 90019VERSA (4)
- 91301WILLB (2)
- 92138GARCM (2)
- 92138TATEK (2)
- GILEB (2)
- SW11 JOHNJ (2)

ID	Full Name	Title	Company	Address 1	Member Type	Previous Mt	Last First
23101			Versaton Belgium	Quartier Latin	CM		
23102			Versaton PR Office	Quartier Latin	CM		

Merge

Duplicate ID: 23102 Merge To ID: 23101

< Swap ID >

Merge

Add To Batch Merge

Add to Known Non-Duplicates

Export

1. **< Swap ID >**: Switch the Duplicate ID and Merge To ID.
2. Select the IDs you would like to use for the merge from the list shown in the table above.
3. **Merge**: Merge the Duplicate ID into the Merge To ID.
4. **Add to Batch Merge**: Add the merge operation to a batch list of merges that will be performed at a later time.

5. **Add to Known Non-Duplicates:** Add the IDs to the list of known non-duplicates. This will omit these IDs from being considered duplicates in future searches. See below on how to maintain the known non-duplicates list.
6. **Export:** Export the duplicate results to a spreadsheet.

## Known Non-Duplicates List

To view or make changes to the known non-duplicates, select View > Known Non-Duplicates.

Here you can remove existing entries, add new entries, or export the list to a file.

Known Non-Duplicates ✕

Contact Id	Reciprocal Contact Id
21235	21234
23102	23101

Add
Remove
Export
Close

Purge Orphans

**Hint:** If you find yourself frequently adding records to Known Non-Duplicates, consider altering Duplicate Record Check Formula and/or Duplicate Record Filter Formula.

**Purge Orphans:** By clicking **Purge Orphans**, a new window will open that allows you to purge known non-duplicate records whose IDs no longer exist in iMIS. This will allow for more time efficient duplicate searches.

## Purge Orphans



### Description

Purges known non-duplicate(s) for record(s) whose IDs no longer exist in iMIS.

### Option

☐ Include record(s) with status codes beginning with 'D'

Contact Id	Reciprocal Contact Id

Purge

Close

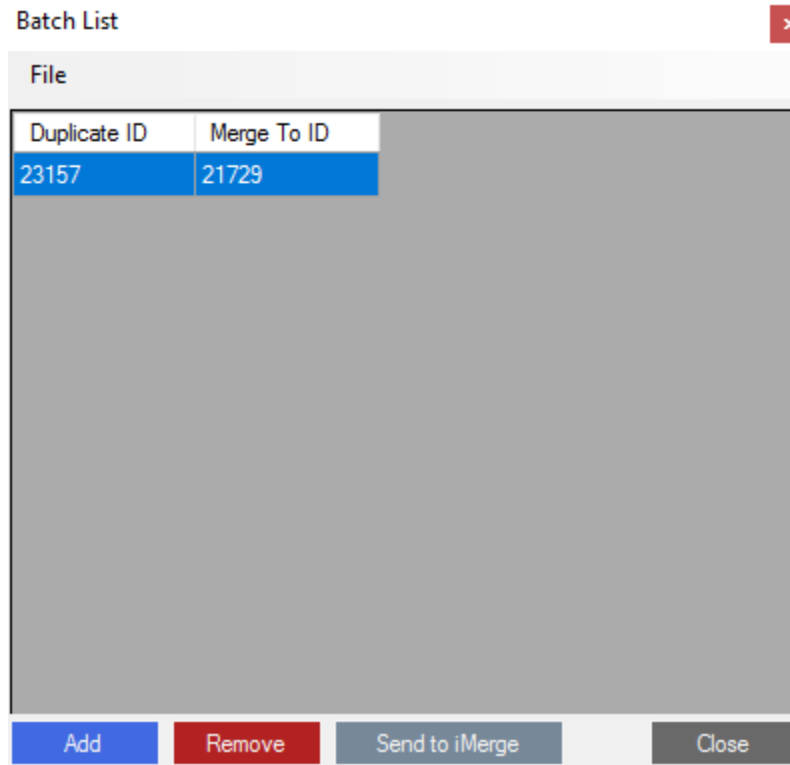
The "Include record(s) with status codes beginning with 'D'" checkbox will purge those records that have been marked for deletion.

Click **Purge** to complete this process.

## Batch List

To view or process a batch list of merges, select View > Batch List.

Here you have the ability to **Add** new IDs to the Batch List, and **Remove** IDs from the existing list.



To process all of the merges as a batch, select Actions > Send To iMerge. This will automatically run the merge.

To save to a text file of the IDs in the batch list, select File > Save.

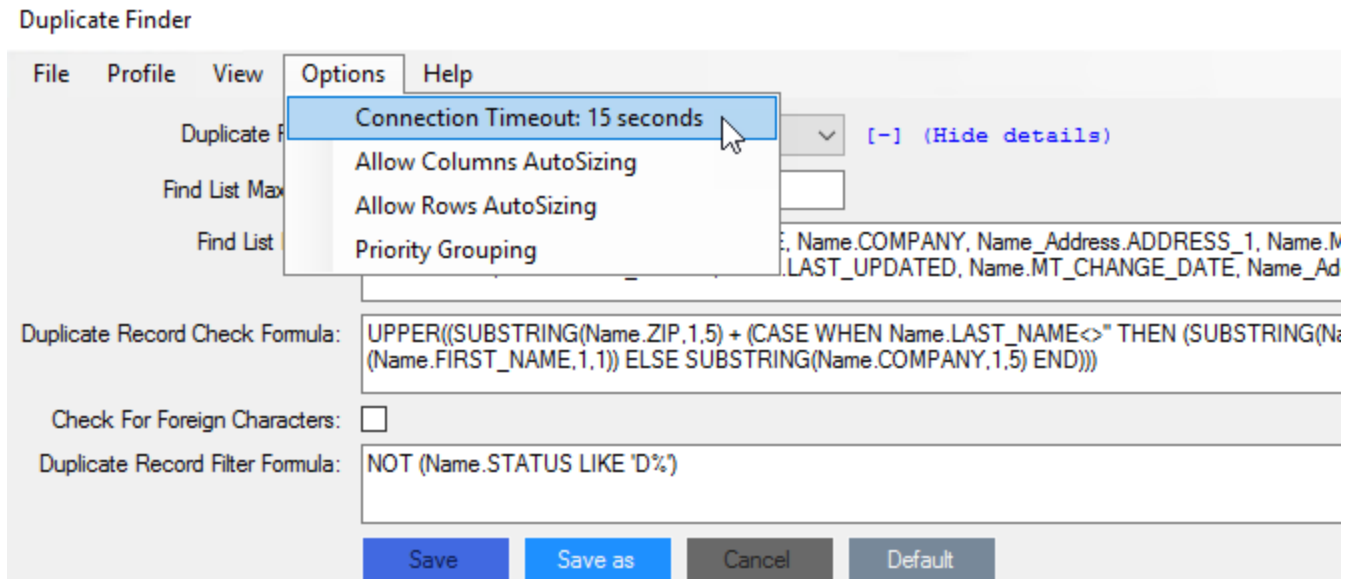
To manually create a new batch list of IDs to merge, select File > New. Then use the **Add** and **Remove** buttons to maintain the list.

**Note:** The Batch List is session-based only. The list will reset once you close out the Duplicate Finder application.

## Connection Timeout Option

If, when you run the profile to find duplicates, you experience a connection timeout due to the large size of the database, or the use of the **Check for Foreign Characters** option, you may increase the connection timeout setting.

1. Navigate to Options > Connection Timeout: <existing setting> and select (as shown below).



2. There will be a pop up window that allows you to adjust the time for connection timeout.
3. Click **Save**.

## AutoSizing

You also have the ability to enable "Allow Column AutoSizing" and "Allow Row AutoSizing" for your search results. This will allow your columns and rows to be automatically adjusted to the search results of the duplicate search.

You can turn these options on/off by navigating to Options> Allow Columns AutoSizing and Allow Rows Autosizing

To optimize performance it is recommended that this be disabled, especially when Find List Maximum is set to a large value.



## Priority Grouping

Under **Options** you have the ability to edit priority grouping. By enabling this, you can search for duplicate records and have them separated into three groups that are defined on date selections. You have the ability to search by a “Fixed Date” or “Fixed Day”.

**Fixed Days:** Allows you to construct priority groups by looking “n” days ago.

For example, **In Days** is set to “60”:

- a search executed 2/1/2014 will create Priority Groups based on 12/3/2013 (60 days prior)
- a search executed 3/1/2014 will create Priority Groups based on 12/31/2013 (60 days prior)

**Fixed Date:** Allows you to construct priority groups based on a certain calendar date.

- For example, using a date of “1/1/2014,” Duplicate Finder will always use this date to create the Priority Groups; whether the duplicate search is performed today, next week, or next month.

The Priority Legend outlines how the Priority Groups are defined.

- **Priority 1:** Records added **since** [date] that match other records added **since** [date]
- **Priority 2:** Records added **since** [date] that match other records added **before** [date]
- **Priority 3:** Records added **before** [date] that match other records added **before** [date]

## Best Practices / Tips for Managing Duplicates

- A. When first using Duplicate Finder the results list may contain thousands of records. Knowing where to start may be overwhelming. Some tips:
- Set Find List Maximum to 0. Perform a duplicate search. Export the results. Divide the exported list into multiple lists and share it amongst multiple individuals. Have the individuals create batch lists for later use with iMerge's Batch Mode functionality.
  - Consider using a temporary staffing service or interns for a few days to process the bulk of records. Afterwards it will be much easier to maintain the results through regularly scheduled duplicate reviews.
  - Enable **Priority Grouping**. Select **Fixed Days** and set **In Days** = 60. Work through the results from Priority 1 -> Priority 2 -> Priority 3.
- B. The length of time it takes to complete a duplicate search largely depends on the quantity of duplicates returned. In the table below, notice how **Search Time** performance decreases as the quantity of **Duplicates Found** increases.

Database Records	Find List Maximum	Duplicate Record Filter Formula	Duplicates Found	Search Time
300,000	2,000	NOT (Name.STATUS LIKE 'D%')	2,000	12 seconds
300,000	10,000	NOT (Name.STATUS LIKE 'D%')	4,000	27 seconds
300,000	10,000	(no filter)	9,600	4 minutes 40 seconds

To improve performance consider making the following changes:

- Set **Find List Maximum** to a smaller value (e.g., 5,000 or lower)
  - Disable **Allow Columns AutoSizing** and **Allow Rows AutoSizing**
  - Disable **Check for Foreign Character**
- C. Consider creating multiple profiles to improve duplicate search accuracy, exclude unnecessary records, or perform different types of duplicate searches (e.g., weekly, quarterly, and annually).
- D. Resize the Duplicate Finder window to view all **Find List Fields** at one time (i.e., without scrolling horizontally).
- E. Most importantly, after going through the hard work to clean up your database, set up a maintenance plan to ensure duplicates are cleaned up on a regular basis. [CSI recommends doing this weekly, with Priority Grouping set to Fixed Days = 60.]
- F. In iMerge, use a custom stored procedure to update IDs in multiple databases and tables. Be sure to update it regularly as new databases, tables, and fields are added/removed in your environment.
- G. In iMerge, a good way to purge unneeded records from the database is by creating a generic non-member iMIS record (e.g., Mr. Deleted Deleted). Afterwards, merge "bad" records into this ID.

## Correct Change Log Format Tool

The Correct Change Log Format Tool is a tool to aid the user in updating the change log format output to the latest version within iMIS.

To launch the Correct Change Log Format Tool, select it from the Tools dropdown menu of your main iMerge screen.

1. You will see a prompt asking you if you would like to scan for records with an outdated format in the change log.
2. Select yes, and the tool will inform you if it found any applicable records and how many of them if they exist.
3. Select yes again and the tool will update the records change log format and notify you it has done such.

## Troubleshooting

### iMerge log of merged records

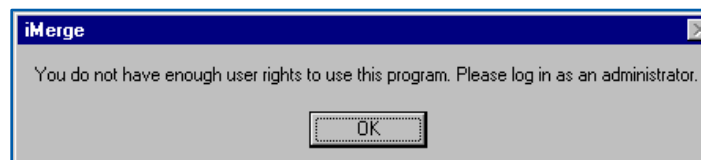
iMerge tracks some limited information on every merge performed – the Merge From ID, Merge To ID, iMIS user name that performed the merge, and the date of the merge. This 'log' file is called CSI\_MergedRecords, and can be viewed by running the following statement in either SQL Management Studio, or directly from **iMIS > Utilities > SQL Query > New**, and paste in the following query:

```
select * from CSI_MergedRecords  
order by DateOfMerge desc
```

Then click **Execute**. You can also create an IQA to query this table as well.

### User is unable to log into iMerge

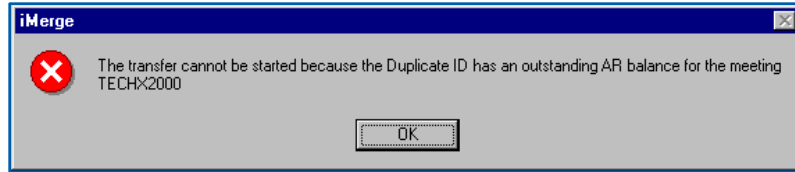
Be sure that you have a user privilege of at least 4 in the membership system. If you do not, you will receive the following message:



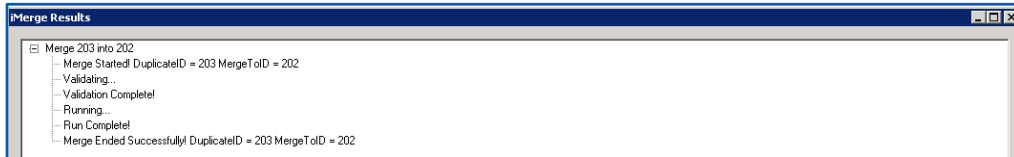
See your System Administrator to increase your user rights.

### Error occurs when user tries to merge a record set

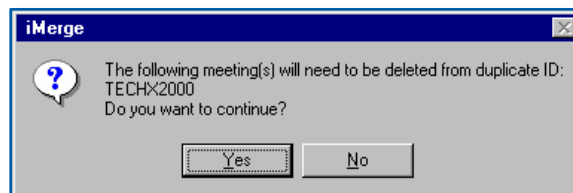
iMerge will not merge a record set in which both IDs are signed up for the same meeting and the duplicate ID has open A/R. Since iMerge cannot create duplicate registrations, one must be deleted. However, registrations with open A/R cannot be deleted.



After you click OK, the Status Report will appear indicating that the merge was unsuccessful.



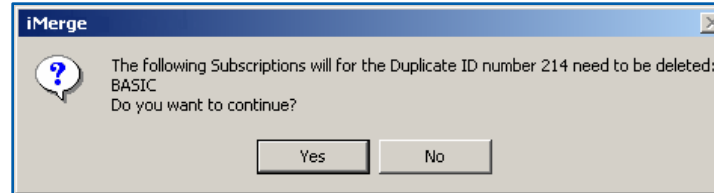
A message box appears asking user if he wants to delete a duplicate meeting registration... The duplicate ID has the same meeting registration as the merge to ID. You have the option of deleting\* the duplicate meeting registration.



## Meeting Scenarios

Duplicate ID	Merge To ID	Outcome
Registered & Not Paid	Registered & Paid	Will not delete Duplicate ID with open AR.
Registered & Paid	Registered & Not Paid	Will not delete if Merge To ID hasn't paid for the same meeting as the Duplicate ID.
Registered & Paid	Registered & Paid	Let's you know that a meeting registration will be deleted. Have the option to discontinue. If you continue, then it will delete the meeting registration from the Duplicate ID.
Registered & Not Paid	Registered & Not Paid	Will not delete Duplicate ID with open AR.

Message appears asking me if I want to delete a subscription for the Duplicate ID



Duplicate ID has a subscription. You have the option of deleting the duplicate subscription.

## Subscription Scenarios

Duplicate ID	Merge To ID	Outcome
Subscription & Not Paid	Subscription & Paid	Lets you know that a subscription will be deleted. Has the option to discontinue. If you continue, then it will delete the unpaid subscription from the Duplicate ID. Always keeps the Merge To ID subscription.
Subscription & Paid	Subscription & Not Paid	Lets you know that a subscription will be deleted. Has the option to discontinue. If you continue, then it will delete the paid subscription from the Duplicate ID. Always keeps the Merge To ID subscription.
Subscription & Paid	Subscription & Paid	Lets you know that a subscription will be deleted. Has the option to discontinue. If you continue, then it will delete the paid subscription from the Duplicate ID. Always keeps the Merge To ID subscription.
Subscription & Not Paid	Subscription & Not Paid	Lets you know that a subscription will be deleted. Has the option to discontinue. If you continue, then it will delete the unpaid subscription from the Duplicate ID. Always keeps the Merge To ID subscription.

## ID listed multiple times in Duplicate Finder search results

When the same ID is listed multiple times in Duplicate Finder's search results it is because a field from a multi-instance table (e.g., Activity, Name\_Address, etc.) is listed in Find List Fields.

For example,

- A. ID 18141 contains multiple addresses; however, the ID is not listed multiple times because fields from multi-instance table Name\_Address are not included in Find List Fields.

Find List Fields: Name.ID, Name.FULL_NAME, Name.Company		
ID	Full Name	Company
18141	Doug Morris	CSI
18142	Doug Morris	Test

- B. Name\_Address.ADDRESS\_1 and Name\_Address.CITY are added to Find List Fields. This causes 18141 to be listed multiple times.

Find List Fields: Name.ID, Name.FULL_NAME, Name.Company, Name_Address.ADDRESS_1, Name_Address.CITY				
ID	Full Name	Company	Address 1	City
18141	Doug Morris	CSI	1234 Main St	Wheaton
18141	Doug Morris	CSI	6789 Maple St	Wheaton
18142	Doug Morris	Test		Wheaton

- C. Note that displaying **any** field from a multi-instance table will cause multiple listings. In the example below it is not obvious why 18141 is displayed multiple times because Name\_Address.CITY is the same for both of its addresses and no additional unique identifiers (like Name\_Address.ADDRESS\_1) are displayed.

Find List Fields: Name.ID, Name.FULL_NAME, Name.Company, Name_Address.CITY			
ID	Full Name	Company	City
18141	Doug Morris	CSI	Wheaton
18141	Doug Morris	CSI	Wheaton
18142	Doug Morris	Test	Wheaton

## Error when attempting to merge 2 records

If, when trying to merge 2 records, you receive an error like...

Subquery returned more than 1 value. This is not permitted when the subquery follows =, !=, <, <=, >, >= or when the subquery is used as an expression

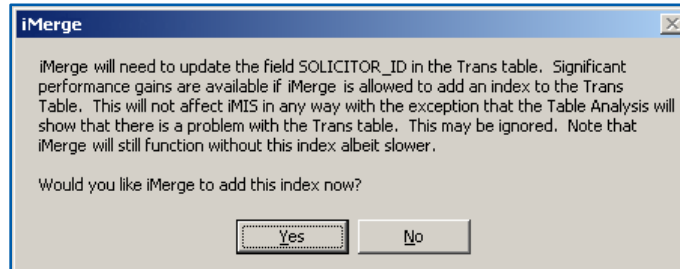
The source of the error is likely from one of 2 places. Either a custom stored procedure is being included with iMerge, that incorrectly returns (see section in user guide labeled '**Developing a Stored Procedure iMerge Can Call**', which discusses how the Stored Procedure Must **NOT** Return Any Recordsets.

Or, there is a custom trigger over one of the tables, causing this error. To test this out, we recommend turning off all custom triggers over a TEST iMIS database, and see if the error persists.

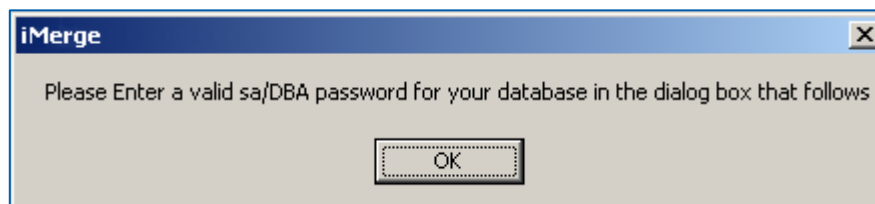
## Known Issues

### Fundraising Transactions (iMIS Versions Prior to 10.2)

Fundraising transactions, by default, are stored in the iMIS database table Trans without an index on the SOLICITOR\_ID data field. If any fundraising transactions exist, a message is displayed asking if you would like to have an index automatically created:



After you click **Yes\*\***, the following message is displayed:

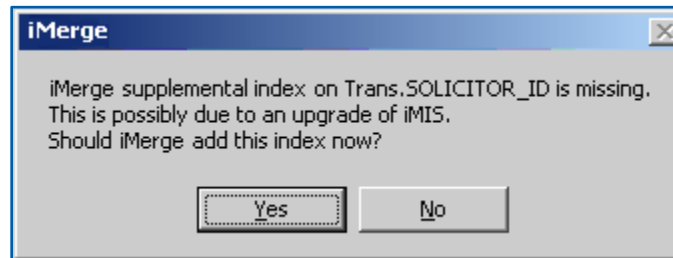




Enter the sa or sa equivalent username and password

When you click **OK**, iMerge will automatically create an index on the SOLICITOR\_ID data field in the Trans table.

**\*\* VERY IMPORTANT:** If you click **No** when asked to create the index, you will not be asked. If you click **Yes**, you will not be asked again unless you rebuild or upgrade the Trans Table. If iMerge detects that you have previously answered **Yes** but is unable to find the index, the following message will be shown:



Click **Yes** to rebuild the index.

## Release Notes

Version	Date	Notes
2.1.2		<ul style="list-style-type: none"> <li>• Timeout values for activity merge queries were increased from 30 seconds to 2 minutes.</li> <li>• The MEMBER_TYPE data field in the Activity and Orders tables is not modified when merging data records.</li> <li>• The CO_MEMBER_TYPE data field in the Orders table is not modified when merging data records.</li> </ul>
2.3.0		<ul style="list-style-type: none"> <li>• CO_ID and BT_ID in the name table are now changed from the Duplicate ID to the Merge to ID</li> <li>• The CO_MEMBER_TYPE data field is updated in both the Name and Orders table</li> <li>• The version does not do Company name and address flowdown.</li> </ul>
2.4.0		<ul style="list-style-type: none"> <li>• Added flowdown for Addresses and Additional User Defined Fields</li> <li>• Added the ability to perform another IMERGE once you are done with the first</li> <li>• Changed error message when you enter the wrong password or username</li> </ul>
2.5.0		<ul style="list-style-type: none"> <li>• Basket Tables are no longer included in the merge</li> <li>• Added new license key</li> <li>• Help now brings up a readme file</li> </ul>
2.5.2		<ul style="list-style-type: none"> <li>• Moved the license key to the database so it only has to be entered once per site</li> <li>• Added support for logins using the Username!sa iMIS syntax</li> <li>• Changed installer so that it does not need to be uninstalled when an update is released</li> </ul>
2.6.0		<ul style="list-style-type: none"> <li>• Added the iMIS 10 look to all the windows in the program</li> <li>• Added support to call a user defined stored procedure at the completion of each merge</li> <li>• Almost complete overhaul of user's manual and installation guide</li> </ul>
2.6.1		Fixed bug when two companies were merged, occasionally, the internally generated FULL_ADDRESS_TEST would try to Flowdown resulting in an error
2.7.0		<ul style="list-style-type: none"> <li>• Fixed error preventing some users from using "Delete Name Record" option</li> <li>• Added code to check for child records getting placed on non-company records</li> <li>• Added Ctrl-L in ID textboxes to bring up search window</li> <li>• Fixed bug that caused subscript error in the Additional Merge Fields window.</li> <li>• Fixed UNILogin and PARALLEL Login modes</li> </ul>
3.0.0		<ul style="list-style-type: none"> <li>• No longer allows merge if both records have the same certification program, and are both completed. Otherwise, it takes the completed program over the incomplete one.</li> <li>• Changed Address Flowdown so it works exactly like iMIS</li> <li>• Added code to update the name record's address information when preferred mail was changed</li> <li>• Changed how iMerge handles waiting for user input. No longer uses 100% CPU while waiting</li> <li>• Changed format of Name_Log entries to better match iMIS</li> <li>• Added EULA to installer</li> </ul>
3.1.1		<ul style="list-style-type: none"> <li>• Added code to flowdown address line 3 for 10.6</li> <li>• 10.6 Additional Tables have been added, and increased field size for fields in 10.6</li> </ul>

Version	Date	Notes
		<ul style="list-style-type: none"> <li>Added support to flowdown open meeting registration changes if "Flowdown" is turned on in iMerge, and update open meeting addresses is checked in iMIS</li> <li>Added code to allow users to choose to mark a duplicate for deletion, delete it, or leave it alone after the merge</li> <li>Added the ability to merge eCommunity posts</li> <li>Added code to allow users to choose to call a stored procedure at the beginning or end of a merge</li> <li>Additional checking is performed to prevent the addition of user defined tables created in iMIS. iMerge automatically merges those tables</li> <li>Added the table csi_MergedRecords, any merges are now automatically recorded there as well as the name log</li> <li>Fixed bug preventing logins when using SQL Server 2005</li> </ul>
3.1.2		<ul style="list-style-type: none"> <li>Fixed problem with UNILOGIN (Model 3) databases that occurred when multiple unlogin databases are installed on one server with different master passwords</li> <li>Case sensitive database support</li> </ul>
3.1.4		Adds iMIS 15 support
3.2.1		<ul style="list-style-type: none"> <li>Adds support to select a file for a merge instead of using the command line</li> <li>Command line is now case insensitive</li> <li>New login control was added</li> <li>New installer</li> </ul>
3.3.0		New installer
3.4.0		<ul style="list-style-type: none"> <li>Fixed issue with ASIUtil and Logins not working with the latest release of iMIS</li> <li>Fixed issue with Trans_SoftCredit.SOFT_CREDIT_ID not updating properly</li> </ul>
3.4.1		<ul style="list-style-type: none"> <li>Fix Name.LAST_UPDATED not updating correctly (CW 18947)</li> <li>Fix change log display duplicated entries. (CW 18897)</li> <li>Fix issues with blank lines in merge.txt file. (CW 18935)</li> </ul>
3.4.2	6/1/2012	Fix installer corrupting ASIUtil.DLL file. (CW 19300)
3.4.3	11/2/2012	<ul style="list-style-type: none"> <li>Correct warning message "Could not load information tables."</li> <li>Allow merging of multi-instance user-defined tables. (CW 28357)</li> <li>Update login control. (CW 28358)</li> <li>Reduce pop-up windows in batch mode. (CW 28359)</li> <li>Update warning message when selecting user-defined table in custom merge fields option. (CW 28360)</li> <li>Update error message texts. (CW 26004)</li> <li>Add new merge support for EventRegistrationAnswer table. (CW 28361)</li> </ul>
3.4.4	12/11/2012	<ul style="list-style-type: none"> <li>Fixed issue with license key when license key was generated with date and region used DD/MM/YYYY format.</li> <li>Fix support for Event tables in iMIS 15. (CW 29908)</li> <li>Fix calling empty stored procedure. (CW 29918)</li> </ul>
4.0.6	3/18/2013	<ul style="list-style-type: none"> <li>Rewritten as a Windows Form Application targeting .Net Framework 4.0 using C#.</li> <li>Allow multiple stored procedures to be run at 3 different stages of merging: Before Pre-Merge Checks, At Beginning of Merge, At End of Merge</li> <li>Remove the restrictions on the valid stored procedures, the stored procedures can return an error message for additional information</li> </ul>

Version	Date	Notes
4.0.7	4/4/2013	<ul style="list-style-type: none"> <li>Fix issue with flowdown that occurs with dates or nulls. (CW 31711)</li> <li>Update installer to include .NET 4.0 instead of 3.5</li> </ul>
4.0.8	4/9/2013	<ul style="list-style-type: none"> <li>Fix installer issue with older versions</li> <li>Update requirements</li> </ul>
4.0.9	4/11/2013	Fix additional installer issues with older versions
4.0.10	4/17/2013	Update code to fix issue when list of flowdown field has spaces
4.0.11	5/2/2013	<ul style="list-style-type: none"> <li>Fix the exception when performing flow down but there is no table field to flow down</li> <li>When prompted for a license key but the user enters an invalid one, allow the user to try again, or exit and contact CSI for a valid one</li> </ul>
4.0.13	5/22/2013	<ul style="list-style-type: none"> <li>Rewrite the SQL statement to remove parameters for plain SQL test</li> <li>Detect the DB server version, no longer support SQL Server 2000 and prior versions</li> </ul>
4.0.14	6/3/2013	Implement Error Reporting
4.0.15	6/11/2013	<ul style="list-style-type: none"> <li>Fix the error when attempting to set up a stored procedure to execute during merge stages. (CW 33135)</li> <li>Create stored procedure csi_sp_MergeWebAccount on first time execution. (CW 32102)</li> </ul>
4.0.25	7/16/2013	<ul style="list-style-type: none"> <li>Integrate the Login Control that supports iMIS 20</li> <li>Use Sql Wrapper for database access, the Sql Wrapper is responsible for Sql error reporting</li> <li>Use NLog to report non-sql errors</li> <li>Include adodb.dll as an execution component</li> </ul>
4.0.29	8/1/2013	Fix the Timeout issue when running Begin-Merge stored procedure. (CW 33790)
4.0.30	8/2/2013	Fix the Issue of Order_Number type mismatch. (CW 34210)
4.0.33	8/9/2013	Fix the Issue of login control Web Server Url (remove "/cs" or "/cs2") for iMIS 20
4.0.34	9/25/2013	Fix contact search by name containing apostrophes (CW 34729)
4.0.35	10/15/2013	Fix errors in FlowDown when client date format differs from English(United States) (CW 35022)
4.0.36	11/3/2013	Fix errors in Address FlowDown (CW 35022)
4.0.37	11/13/2013	Fix to installation script (CW 35022)
4.1.0	2/25/2014	<ul style="list-style-type: none"> <li>Added a changelog entry when merging and not deleting the source ID on the source record, e.g. "Merged into XXXX". (CW 37756)</li> <li>Added an option when performing a batch merge to suppress all messages until the end of the merge. (CW 38125)</li> <li>Added a warning when calling a stored procedure at the end of the merge when "Delete Duplicate ID" is on, and the "{Duplicate ID}" token is used. (CW 32012)</li> </ul>
4.1.0.2	3/24/2014	<ul style="list-style-type: none"> <li>Add minor fix in retrieving database name information (CW 38700)</li> <li>Add warning message when opening Edit Custom Merge Fields option window (CW 38848)</li> </ul>

Version	Date	Notes
4.1.13	4/15/2014	Duplicate Finder released
4.1.14	4/16/2014	Fix missing merge actions for soft credits (CW 39268)
4.1.15	5/1/2014	Fix issues with merging multiple instances of same CEU programs (CW 39169)
4.1.16	6/9/2014	Fix SQL error when merging certain certification records (CW 39169)
4.1.17	6/16/2014	Fix issues with casting Name.ID as numeric value in internal default sorting setting (CW 40340)
4.1.18	7/17/2014	<ul style="list-style-type: none"> <li>Fix issue with MergeTo and Duplicate in reversed order in the duplicate finder window (CW 40511).</li> <li>Fix issues when manually selecting multiple certificates during merge (CW 40267)</li> <li>Fixed formatting for addresses in about windows (CW 40448)</li> <li>Added Product Support section under help tab (CW 40448)</li> <li>Updated wording in messages and tab menu items for clarity throughout (CW 40448)</li> <li>Renamed duplicate table from csi_iDupeFinder to csi_iMerge_DuplicateFinder for clarity (CW 40448)</li> <li>Removed 'Delete Duplicate ID (not recommended)' tab menu item (CW 40448)</li> <li>Moved 'Send To iMerge' from tab menu item to a button in Batch List window (CW 40448)</li> <li>Widened Custom Fields Merge window to allow full table names to show in dropdown list (CW 40448)</li> </ul>
4.1.19	8/26/2014	<ul style="list-style-type: none"> <li>Added iMerge Information strip on the bottom of the window (CW 40744)</li> <li>Changed colors of informational text on the bottom from red to blue to reduce confusion about errors. (CW 41371)</li> <li>Simplified Informational text to now fit within the window width. (CW 41371)</li> </ul>
4.1.20	9/5/2014	Fix stored procedure error handling bug (CW 41970)
4.1.21	9/9/2014	Fix empty error message being displayed (CW 41970)
4.1.22	9/17/2014	<ul style="list-style-type: none"> <li>Fix field truncation issue on Orders table (CW 41366)</li> <li>Fix apostrophe issue in fields (CW 41366)</li> </ul>
4.1.24	10/22/2014	<ul style="list-style-type: none"> <li>Fix script csi_sp_MergeWebAccount to keep web account with highest login date (CW 42950)</li> <li>Minor fixes for installer program</li> </ul>
4.1.25	12/11/2014	<ul style="list-style-type: none"> <li>Fix issue of overwriting data to TARGET_ID when merging records with child relationships (CW 43249)</li> <li>Fix issue for custom flowdown fields of FLOAT type being interpreted as dates (CW 43734)</li> </ul>
4.1.26	1/6/2015	Allow selected tree node to remain visible and highlighted (CW 41904)
4.1.30	2/26/2015	<ul style="list-style-type: none"> <li>Add validation for missing ID field and multi-instance tables on formula fields (CW 44950)</li> <li>Add support for FormResponse new table starting in iMIS version 20+ (CW 42460)</li> </ul>

Version	Date	Notes
		<ul style="list-style-type: none"> <li>Update information message on finding duplicated event registration (CW 45548)</li> <li>Update validation error messaging for input fields (CW 44950)</li> <li>Write to Name_Log before "End of merge Stored Procedure" (CW 43974)</li> </ul>
4.1.31	3/31/2015	Fix issue with company flow down having too many rules and child records (CW 46371)
4.1.32	4/8/2015	Enhancements for Licensing, Login and About dialog windows (CW 46314)
4.1.34	5/15/2015	<ul style="list-style-type: none"> <li>Fix rollback custom stored procedures calls at beginning of merge (CW 46733)</li> <li>Final version supporting 10.6</li> </ul>
4.1.36	5/15/2015	<ul style="list-style-type: none"> <li>Support 15.1 and up</li> <li>Correct doubled gift amounts in history reports (CW 47426)</li> </ul>
4.1.37	6/5/2015	Add support for new field AutoPayInstruction.CustomerId (CW 47915)
4.1.38	6/15/2015	Increase SQL command timeout when merging fund raising data (CW 47892)
4.1.40	7/6/2015	Fix bug with Login control not accepting valid URL (CW 48242)
4.1.41	7/16/2015	Enhancements to login control and iMIS URL handling. (CW 48242)
4.1.43	7/27/2015	<ul style="list-style-type: none"> <li>Improve merging of Trans records due to triggers (CW 47426)</li> <li>Added csi_sp_iMerge_UpdateTrans</li> </ul>
4.1.44	12/8/2015	<ul style="list-style-type: none"> <li>Added application tracing (CW 49624)</li> <li>Update icons in windows forms (CW 52391)</li> </ul>
4.1.45	12/9/2015	Correct expiration date issue on temporary license (CW 52325)
4.2.0	2/29/2016	Add program version validation on startup (CW 57579)
4.2.1	3/30/2016	Fix deployment issues with merge account script (CW 59579)
4.2.2	4/11/2016	Fix issue with license prompt. (CW 59148)
4.2.4	6/16/2016	<ul style="list-style-type: none"> <li>Enhance support for DPI scaling (CW 61773)</li> <li>Add support for additional fields to be merged, such as Order_Meet.REGISTERED_BY_ID (CW 61790)</li> </ul>
4.2.5	7/11/2016	<ul style="list-style-type: none"> <li>Update change log entries to match iMIS log text formatting (CW 61987)</li> <li>Prevent merging of parent company to its child record (CW 61991)</li> </ul>
4.2.6	9/6/2016	Update sample stored procedures examples. (CW 63229)
4.2.7	10/4/2016	Add picture merging from Duplicate ID to Merge to ID (CW 63766)
4.2.8	10/17/2016	<ul style="list-style-type: none"> <li>Add warnings for Member-to-Company and Company-to-Member merges, as well as block merging a company with rostered members. (CW 63750)</li> <li>Block merging of Known Non-Duplicate IDs (CW 63288)</li> </ul>
4.2.9	10/26/2016	Removed picture merging (CW 63766)
4.3.0	11/9/2016	Added merging for non-member, non-company records (CW 61991)
4.3.1	11/16/2016	Updated merge validation for companies (CW 61991)
4.3.2	11/22/2016	<ul style="list-style-type: none"> <li>Added support for alpha character IDs in company merge SQL. (CW 64183)</li> <li>Added batch file functionality to company merge validation. (CW 61991)</li> </ul>



Version	Date	Notes
4.3.21	11/22/2016	Fix warning message suppression not resetting in batch mode (CW 61991)
4.3.22	12/1/2016	Remove GiftHistorySummary table from merge. (CW 64480)
4.3.33	12/5/2016	Add "Save As" functionality to modify default duplicate search query without overwriting. (CW 64636)
4.3.34	12/20/2016	Updated merge validations. (CW61991)
4.3.35	12/30/2016	Unchanged data will not be written to change log (CW65202)
4.3.38	2/9/2016	SA password will only be asked for if stored procedures need creating/updating or iMerge tables need creating/updating. (CW65202)
4.3.40	3/24/2017	Added RiSE certifications merging. (CW65857)
4.3.45	4/18/2017	Updated stored procedure checks to account for older all lower case parameter names. (CW 67097)
4.3.46	4/25/2017	Added check for RiSE certifications table updates. (CW 67191)
4.3.47	7/17/2017	Change .NET framework requirements to 3.5 and 4.0 Full (CW 69092)
4.3.49	11/10/2017	Added warning for bad iMIS IDs and specify which IDs are bad in batch merges. (CW 71436)
4.3.50	1/10/2018	Updated licensing in CSI.Core. (CW 72484)
4.3.51	2/15/2018	Updated stored procedure to account for different server and database collations. (CW 73676)
4.3.52	2/28/2018	Remove merge updates on tables: DonationReport, GiftReport, and PledgeReport. (CW 73834)
4.3.60	03/14/2018	Added functionality for finding and deleting duplicate Org Admins in the Relationship table. (CW 73877)
4.3.61	06/21/2018	Fix collation error when using duplicate finder (CW 76241)
4.4.0	10/18/2018	Refresh user interfaces and core library version (CW 78328)
4.4.1	10/22/2018	Enhance duplicate finder with shortcut keys on main interface and on handling selection on non-duplicates listing (CW 78288)
4.4.2	10/29/2018	Prevent merging MANAGER, ADMINISTRATOR, and GUEST accounts (CW 78627)
4.4.4	11/7/2018	Added merging user interactions/communications (CW 78855)

# Index

This PDF reader's Search functionality is far more powerful than a traditional index; please use it to locate words and phrases within the User Guide.

The Search function is typically accessed by pressing Ctrl + F. CSI recommends using the Advanced Search function in Adobe Reader or Adobe Acrobat.

- Shift + Ctrl + F
- Edit -> Advanced Search

