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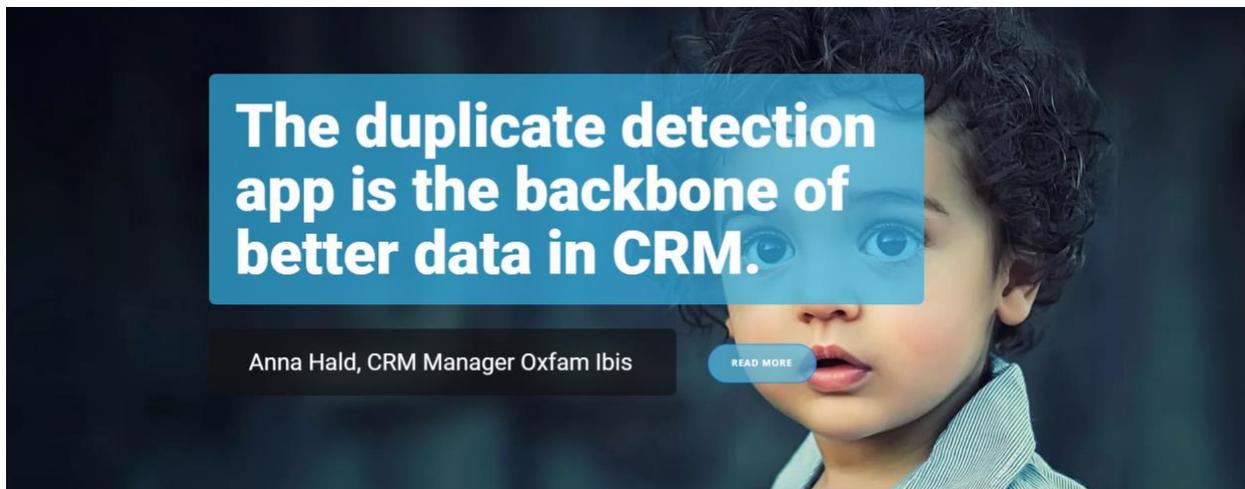
# Duplicate Detection for Microsoft Dynamics 365

[www.duplicate-detection.com](http://www.duplicate-detection.com)



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## What is Duplicate Detection?

Duplicate detection is an app (Managed solution) for Dynamics CRM. Duplicate Detection enables you to:

- Prevent users from creation of Duplicates
- Define bespoke rule/rules to deduplicate existing records (Applies to both custom and system entities)
- Use prebuild logic to Auto merge Duplicates

In other words, this app helps you toward better data governance in Microsoft CRM as it enables organizations to establish a reliable data foundation.

The App is GDPR Compliance as all that stays within your own CRM. No external API calls or other 3<sup>rd</sup> party data validation services are applied.

## Supported version of Dynamics CRM

Duplicate Detection supports CRM versions 2015 (8.x) & 2016 (9.x) On-Premise, IFD and Dynamics 365 Online are supported.

### Trial version

No license is required, it is by default in trial mode. Once purchased a license key will be provided to you.

Below you can see a comparison table that shows the difference between the free vs. paid version:

Capability	Free version Always free	Full version 1700 Euro Annually
Prevent Duplicates creation	✓	✓
Get overview on Duplicates	✓	✓
Define bespoke rules	1 rule only	Unlimited
Bulk detect Duplicates	Based on 1 rule	Unlimited
Bulk Automerge	10 records	Unlimited
Support	NO	YES

## 8 Quick steps to get started

1. Download the Duplicate Detection app from website (or AppSource)
2. Import the solution and publish customizations
3. Assign user roles to **all users** (3 roles – assign at least one role)
4. Disable standard CRM DD rules (recommended to avoid confusion)
5. Define your rule/rules\*
6. Run bulk detect toward your existing data
7. Auto merge with predefined logic where you define master record
8. Activate license (when purchased)

Visit <https://duplicate-detection.com/learn/> to view short video tutorials related to the above steps.

\* All rules run actively in the background preventing users to create duplicates

The below guide contains all the information you need to get started. Have fun with your trial version and reach out to us if you have any questions: [support@techdio.dk](mailto:support@techdio.dk)



### **Great app for fast cleaning!**

We started with CRM version 3.0 and after few years we ended up migrating data from other systems. This created huge number of duplicates. We used this app to clean over two million duplicates, it took no time. Great way to specify rules, execute and share them with the end users. We can today specify auto-rules and make sure we never get new duplicates.

*Comments from Microsoft AppSource user*



## License Activation

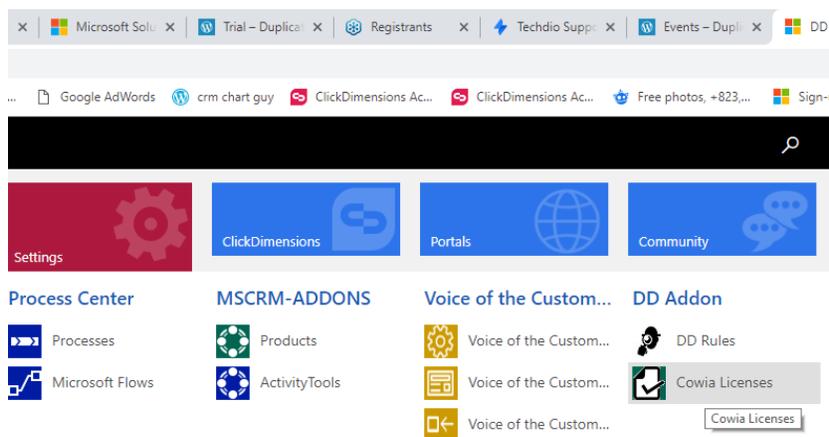
Once you purchase **you need to send us your organization key in order to activate the license.**

Please follow the below steps:

Open CRM and navigate to Settings -> Extensions -> Cowia Licenses

If there is already one record created, then open it and send the value of 'name' to support@techdio.dk

If there is no record then click on 'New Cowia License' and click 'Save', it will generate value in 'name' field, send us this value to [support@techdio.dk](mailto:support@techdio.dk)



The value looks something like this. Values are unique for each system:

### ▶ General

Name	
Activate Code	-----
License Status	Not Valid

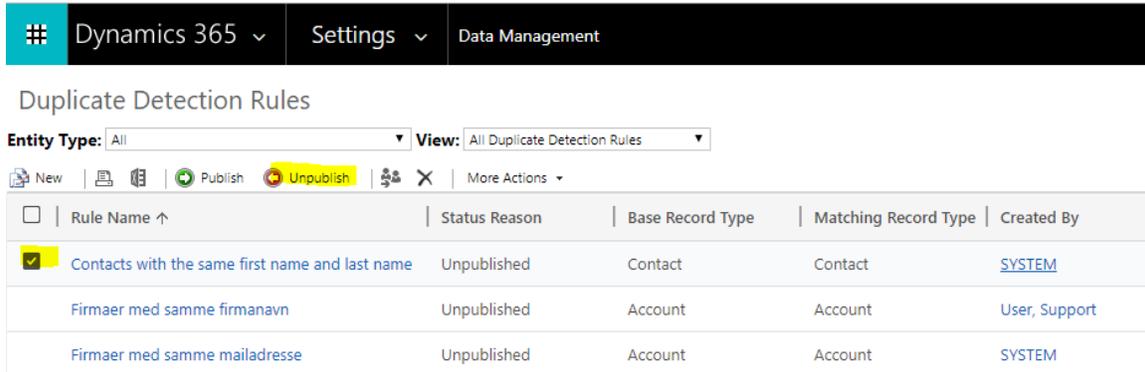
After purchasing and once you send us the value in the field "Name", We will send your activation code which you will insert in 'Activation Code' field and click 'Save' You will be able to see by 'License Status' if it is accepted. The subscription is auto renewed annually. During renewal we will send you a new activation key which you will need to update. If you want to unsubscribe please send an email to [support@techdio.dk](mailto:support@techdio.dk) minimum 2 months before the renewal date.

The Trial version does not need to be activated. Activation only is for customers who have purchased the solution.

## Default Duplicate Detection

It is up to you if you want the default (build in standard capability of Microsoft CRM) duplicate detection to continue running, we recommend deactivating rules on those entities where you will use duplicate warning window of this addon, otherwise users will get two duplicate detection warnings, one by default and other by this addon. You can deactivate the existing default DD rules here:

Settings – Data management - Duplicate Detection Rules – Select the desired rules and unpublish:



The screenshot shows the Dynamics 365 interface for managing Duplicate Detection Rules. The breadcrumb trail is: Dynamics 365 > Settings > Data Management. The page title is "Duplicate Detection Rules". The "Entity Type" is set to "All" and the "View" is "All Duplicate Detection Rules". The "Unpublish" button is highlighted in yellow. Below the toolbar is a table of rules:

<input type="checkbox"/>	Rule Name ↑	Status Reason	Base Record Type	Matching Record Type	Created By
<input checked="" type="checkbox"/>	Contacts with the same first name and last name	Unpublished	Contact	Contact	<a href="#">SYSTEM</a>
<input type="checkbox"/>	Firmaer med samme firmanavn	Unpublished	Account	Account	User, Support
<input type="checkbox"/>	Firmaer med samme mailadresse	Unpublished	Account	Account	SYSTEM



### We saved 120-160 hours of manual work!

Your product has some very powerful features for cleanup of duplicates. It has saved us 120-160 hours of manual work. The fact that the rules are also utilized to prevent users from creating new duplicates makes this app very powerful tool. We tested various apps which we got recommended by Microsoft one of them being yours. After testing several apps there is no doubt that this app is a hidden gem.

Thank you for saving us time and maintaining a duplicate free CRM database.

*Comments from Microsoft AppSource user*



## Create Duplicate Rules

To create duplicate rules, navigate to 'Settings' -> 'Extensions' -> 'DD Rule' and click 'New'

When you open it, you will see 'Loading' in field 'Source Entity', wait for it to finish, it is scanning your systems for entities.

When ready, give it a name, for example 'Contact duplicates by e-mail'. (When users or integration software gets duplicate warning, name of the rule will be displayed)

### General Tab

**Source Entity:** This is the entity where it will use source data from.

**Target Entity:** This is the entity where it will use target data from.

If you want to check contact duplicates, you will select 'Contact' in source and target entity. If you want to check leads against accounts, check if lead is already created as account, you will select 'Leads' in source and 'Account' in target entity.

*Note that you can create cross entity duplicate rule, prevent duplicate and run bulk detection, but it is not possible to merge cross entities rules.*

**Result View:** This will show all system views for 'Target Entity' that you can select, this is used to select which columns/fields to show users when they get duplicate warning. For an example: You want to show users 'First name, Last name, E-mail, Owner' of contacts when they get duplicate warning for contacts.

**Run As User:** If you want it to detect duplicates based on data that this user has read access to.

**Run As System:** This can be used if you want it to detect duplicates in the whole system, regardless what the user has access to. For example: You have user 'A' that is only allowed to read own records, but you want it to detect duplicates if users try to create record that exist in the CRM owned by user 'B'. User will get duplicate warning that same record exists but will not give the user more access.

**Run On:** When you want it to detect duplicate, when records are created, updated or both.

**Include Inactive:** If you want to check duplicates against inactive records

**Allow Duplicates:** This option controls if it is allowed for users or integration to create new duplicates. If it is allowed, it will still give warning to users and they will be able to either cancel or save the new record. If it is not allowed, it will give warning to user and they will not be allowed to create the new record, it will also prevent integration from creating new record.

### Source Filtering for Bulk Detection Tab

**Source Entity Filter Type:** This is used if you want to filter source data, for example 'Only contacts that have value in e-mail'.

You have option of using existing system view or fetch xml for filtering records.

*Note when using filtering on a rule, the user-friendly window will be disabled for that rule, it will still detect for new duplicates and where CRM will give a duplicate error, so user will not be able to create new duplicate using the filtering. Source Filtering is only supported where you have selected 'Allow Duplicates' = No.*

### Target Filtering for Bulk Detection Tab

**Target Entity Filter Type:** This is used if you want to filter target data that source data will check for duplicates, for example 'Only contacts that have value in e-mail'.

You have option of using existing system view or fetch xml for filtering records.

*Note when using filtering on a rule, the user-friendly window will be disabled for that rule, it will still detect for new duplicates and where CRM will give a duplicate error, so user will not be able to create new duplicate using the filtering. Target Filtering is only supported where you have selected 'Allow Duplicates' = No.*

### Ignore users Tab

You can add users that will be ignored by this rule, for an example; you can add your integration user here, if you want to bypass the duplicate detection rule for your integrations.

### Fields matching for finding duplicates Tab

Before you can add fields to the rule, you need to 'Save' the DD Rule first.

To add new field, click on '+' sign and it will open new window. It will automatically detect fields from the source and target entity that you have selected.

**Source Field:** Field from the source entity that you want to use to detecting duplicates

**Target Field:** Field from the target entity that you want to check source field against for duplicates

**Compare Blank Values:** If it should detect duplicate if value in the field is empty, for example if you have two contacts without e-mail and you use e-mail to detect duplicates, do you want it to detect those two contacts as duplicate or ignore them

**Field Type:** This is just for information to display what kind of field type you have selected.

**Compare Lookups As Text:** If you want to use lookup field for detecting duplicates, like 'Parent Account', you can select it to detect duplicate by the specific record from the lookup or the name value from the lookup. For example: Do you want to detect duplicates on contacts that have specific account as parent or do you want to detect duplicates on contacts that have parent account with same name.

**Duplicate Detection:** For information, name of the 'DD Rule' that this field matching belongs to.

**Trim Text:** If you want to remove empty space before and after the value. (Only for target field)

**Remove Whitespace:** If you want to remove all spaces from the value. (Only for target field)

**Text Comparison:** Here you can select how you want to match fields from source entity against target entity. (Only for target field)

**Exact:** Value from source field is exact to value from target field. (Only for target field)

**First N Characters:** How many characters to use from the source field and use that value to detect duplicates against target field. For example: You have account named 'Covia Solutions' and if you use 'First N Characters' and set it to '5' Then it will take first 5 characters and use that value to detect duplicate, in this example it will use value 'Covia' and check if other accounts starts with 'Covia'

**Last N Characters:** Same as above but last characters instead of first.

**Contains:** It will detect duplicate if the value from source field is part of the value in target field. For example, you have account named 'Covia Solutions' and try to create new account named 'Covia', it will detect duplicate because 'Covia' is part of 'Covia Solutions'

**Ignore Words:** If you want to ignore/exclude words from the value, for example, you want to ignore words like Inc, Corp, GmbH and ApS from account name when detecting duplicates, values are separated by comma. (Only for target field)

Below you can see a simple example of DD rule on contacts that have same email:

DD RULE: INFORMATION  
Contact exact email

**General**

Name: Contact exact email

Source Entity: Contact

Target Entity: Contact

Result View: Aktive kontaktpersoner

Run As User: Run As System: No

Run On: Create & Update Include Inactive: No

Allow Duplicates: No Enable for List View: Yes

Source Filtering for Bulk Detection

Target Filtering for Bulk Detection

Ignore users

Fields matching for finding duplicates

Source Field	Target Field	Field Type	Text Comparison	Created On
emailaddress1	emailaddress1	Text	Exact	14-03-2019 10:34

## Bulk Detection

You can run bulk detection on any duplicate rule and check for existing duplicates.

Navigate to 'Settings' -> 'DD Addon' -> 'DD Rule' and open the rule that you want to run bulk detection on.

Click on the button 'BULK DETECTION', it will ask you if you want to run it as 'Foreground' or 'Background'.

**Foreground** means that it will use your browser to run the bulk detection and you must keep it open to finish. Benefit of foreground is that it can be faster than background. Downside is that you need to keep your browser open and risk of time-outs are increased.

If you select 'Foreground', new window will open and it will start to run the bulk detection where you can see the status, when it is completed, you can click on 'Open report' or 'Show all duplicates'.

To see all bulk detection results that have been executed for each duplicate rule, open 'DD Rule' and click on 'DD Bulk Operations'.

The screenshot shows the Dynamics 365 interface. The top navigation bar includes 'Dynamics 365', 'Settings', 'DD Rules', and 'Contact exact email'. The left sidebar has a 'Common' section with 'DD Bulk Operations' highlighted. The 'Process Sessions' section shows 'Background Processes' and 'Real-time Processes'. A tooltip for 'DD Bulk Operations' is visible. The main content area displays a table with the following data:

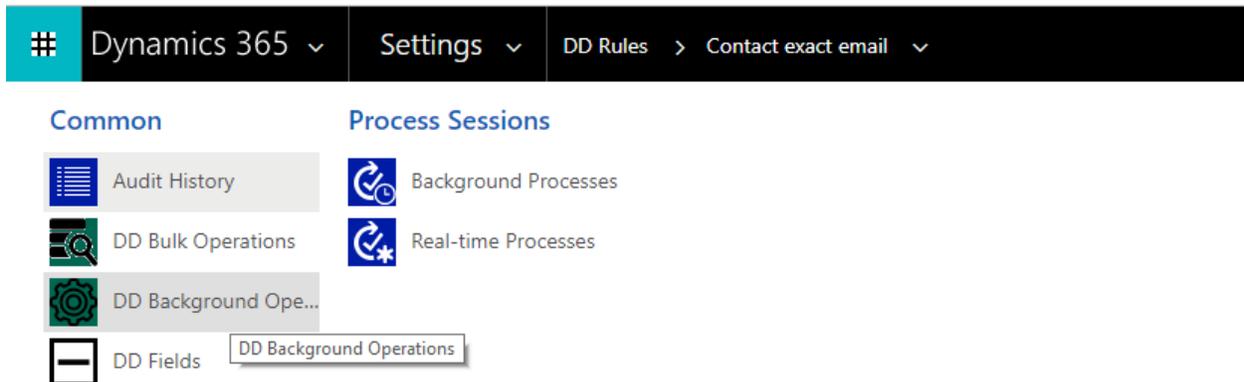
Name ↑	Created On
Contact Name 2019-03-14 10:34:43	14-03-2019 10:34
Contact Name 2019-03-14 10:35:57	14-03-2019 10:35
Contact Name 2019-03-14 10:36:40	14-03-2019 10:36

**Background** will only work if you have installed 'Bulk Detection Background Service', you can schedule it to run at specific time or immediately. Benefit of background is that you don't need to have open browser and is more reliable when running on many records. If the background service stops by some reason, it will continue where it left of when started again. To stop an running background job, you can deactivate the background job in CRM and it will stop processing records. If the job fails by some reason, it will change status to 'Error' in CRM, when in this state, you can activate the job and it will retry again where it left of, it will retry 10 times and go to 'Error' state again if it wasn't successful on retry. When in 'Error' state, you can also cancel the job by clicking on 'Cancel' button.

We recommend using background service if you have many records or experience time-outs when running in foreground.

Users with security role 'Duplicate Detection Bulk Operations' will have access to schedule bulk detection and bulk merge job on behalf of the user. They are not able to uncheck 'Run as current user'. It will ignore the 'Run as' settings on the duplicate rule. It is only administrator users that can uncheck it and schedule the job to run as defined in the rule.

If you select to run in 'Background', you can view status by opening the 'DD Rule' and click on 'DD Background Operations' It will also save the result under 'DD Bulk Operations'.



## Bulk Merge

To run bulk merge, open the 'DD Rule' -> 'Bulk Operations Result' Open the bulk detection result that you want to use for bulk merge and click on 'MERGE DUPLICATES'.

### Rules:

Records will be merged with the master record in the selected order.

1. Only selected and empty fields will be overwritten. 2. Merging related records is optional. 3. Merged records will be deactivated after the operation succeeds. 4. If record is closed, it will be re-opened and closed again when merging.

Selecting master record:

### Select master record by using FetchXML:

You can use fetch xml to select master record, only records that meet the filter criteria will be merged. If it finds more than one master record for the duplicate set, it will select the master record using the merge order option. If there are any duplicates left that haven't been merged, you can use different fetch xml criteria or only use merge order options to merge them. To create fetch xml, you can use advanced find, create your filter and click on 'Download Fetch XML'. You can only use fields that are on the same form/entity, fields from related entities are not supported.

### Oldest to newest

(Oldest record is preserved), you can select that master record will be the oldest in CRM by using 'Created On' or 'Modified On' value.

### Newest to oldest

(Newest record is preserved), you can select that master record will be the newest in CRM by using 'Created On' or 'Modified On' value.

### Most to least

(Having most of record is preserved), you can select that master record will be the one with most activities or by most filled fields.

### Least to most

(Having least of record is preserved), you can select that master record will be the one with least activities or by least filled fields.

### Merge related records:

You can select if you want to merge related records, it will move related records from the duplicate to master record.

### Skip errors:

If you want to skip errors when it runs bulk merge, you could have some business logic on the record where bulk merge fails, this option is if you want to continue to next record or stop the whole bulk merge operation. For background operations, this is always enabled.

### Fields:

You can select which fields you want it to merge to master record, if master record has value in the field, it will not be overwritten, it will only merge values to empty fields on master record.

**Operation:**

If you want to run bulk merge in background, check 'Work in background' and choose if you want to schedule the job and click 'Start merge' If you don't select 'Work in background, it will run in foreground using your browser, which also means you have to wait until the job is completed.

When record has been merged, it will mark the record and if you run bulk merge again on same 'Bulk Operations Result', it will not merge those records again. You can see this on column 'Merged'.



**Duplicate values in business-critical tables**

Issue: Duplicate values in business-critical tables. The standard merge would take us 2 months to go through manually. Solution: Using DD as a clean-up search and merge engine, we were able to do this within hours and with a significantly higher accuracy than a manual routine. I can recommend this app for others in same situation.

*Comments from Microsoft AppSource user*



## Security Roles

Duplicate detection comes with 3 dedicated security rolls. If you have the CRM admin role you still need to have the DD security role. For non-administrative users, you need to assign them 'Duplicate Detection' security role, this will give them minimal access to duplicate detection addon.

If you want users to schedule bulk detection and bulk merge job on behalf of the user, you need to give them 'Duplicate Detection Bulk Operations' security role.

For users that need full access of the addon, you need to assign them 'Duplicate Detection Administrator' security role. It is only this role that can uncheck 'Run as current user'

Duplicate Detection	techdiosandbox
Duplicate Detection Administrator	techdiosandbox
Duplicate Detection Bulk Operations	techdiosandbox

Roles assigned to teams are not supported in the current version.

## Removing the addon

Before you can remove the addon, you need to remove the duplicate warning window on the entities where enabled, if you try to remove it before, it will give you error. (Default CRM)

### Remove User-Friendly Duplicate Warning Window

When you create a DD rule for an entity first time, it will automatically activate the user-friendly window and duplicate warnings.

To remove it, it must be done manually.

To disable duplicate warning windows, navigate to 'Settings' -> 'Customizations' -> 'Customize the System' -> 'Entities' -> Select the entity where you have created DD rule for - for example contacts -> 'Forms', if you have multiple forms for same entity, you need to disable it for each form.

Open the form and click on 'Form Properties'

Under the 'OnLoad' events, select 'cow\_/DuplicateDetection.js', click on 'Remove' button.

Repeat same process for the 'OnSave' event.

When you have done it for 'OnLoad and 'OnSave' event, then click on 'Save' and then 'Publish'.

The screenshot shows the 'Form Properties' dialog box with the 'Event Handlers' section expanded. The 'Remove' button is highlighted in yellow, and the 'cow\_/DuplicateDetection.js' entry in the event handlers table is also highlighted in yellow.

Name	Display Name	Description
msdyn_talkingpointsloader.js	talkingpointsloader	
msdyn_/Utils/head1.0.3.js	Head1.0.3.js	
msdyn_/Contact/Contact.Library.js	Contact.Library.js	
cow_/DuplicateDetection.js	Duplicate Detectio...	Put OnLoad on for...

Library	Function	Enabled
msdyn_talkingpointsloader.js	loadTalkingPoints	True
msdyn_/Contact/Contact.Library.js	FS.Contact.Library.Load	True
cow_/DuplicateDetection.js	DuplicateDetection.onLoad	True

## Remove the DD solution

You can remove the addon by removing the solution.

All Solutions ▾

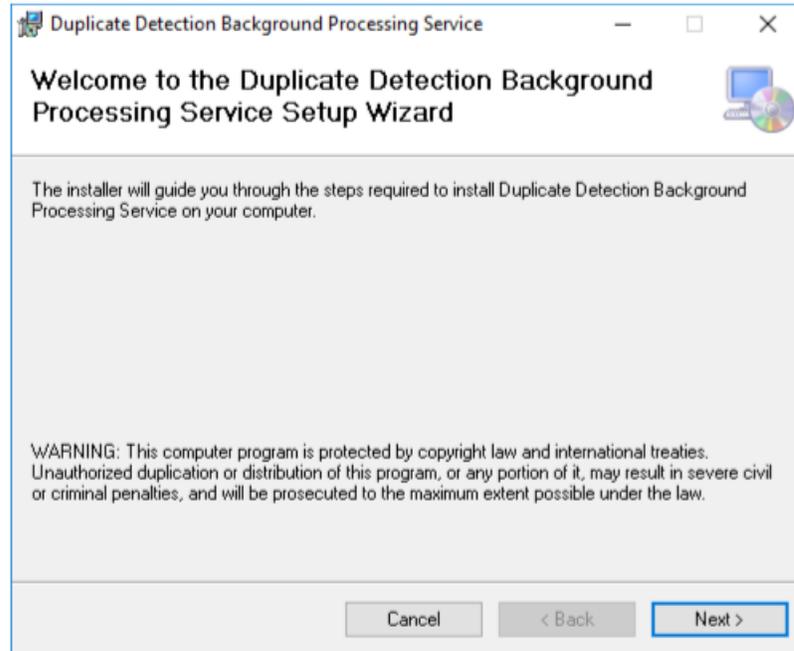
 New  Delete  Show Dependencies  Import  Export  Clone a Pat

	Name	Display Name	Version	Installed C
	msdyn_LinkedInSales...	LinkedIn Sales Navigat...	3.0.0.0680	4/20/
	LinkedInSalesNavigat...	Sales Navigator for Dy...	3.0.0.0680	4/20/
	LinkedIn	LinkedIn - Sales Navig...	3.0.0.0630	4/20/
	Migr8	Migr8	1.0.0.0	4/12/
	MicrosoftMarketplace...	Microsoft marketplace...	1.0.0.0	4/12/
<input checked="" type="checkbox"/>	DuplicateDetection	Duplicate Detection	2019.03.11	4/10/

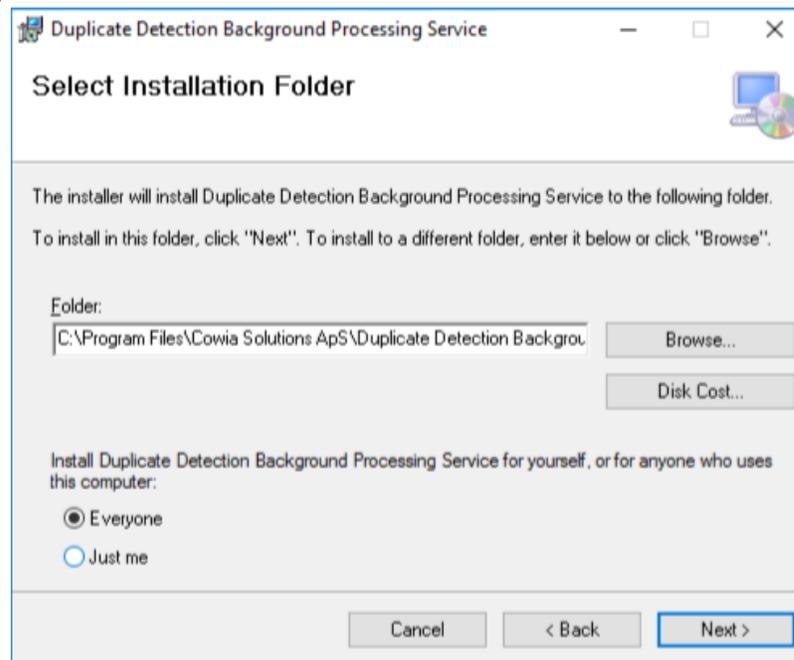
## Background Service Installation

Download latest version from <https://duplicate-detection.com> under 'Guide'

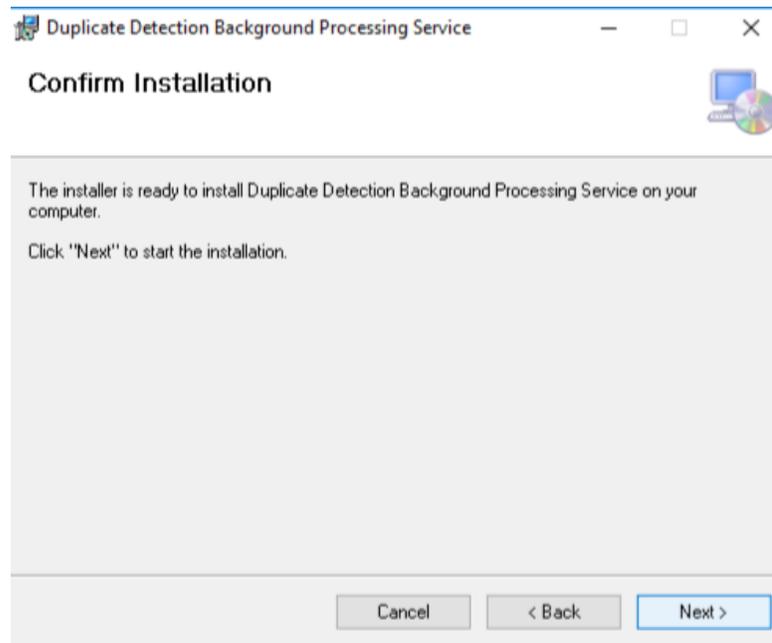
1. Extract files from DuplicateDetection.BackgroundService.Installer and run setup.exe
2. Click "Next"



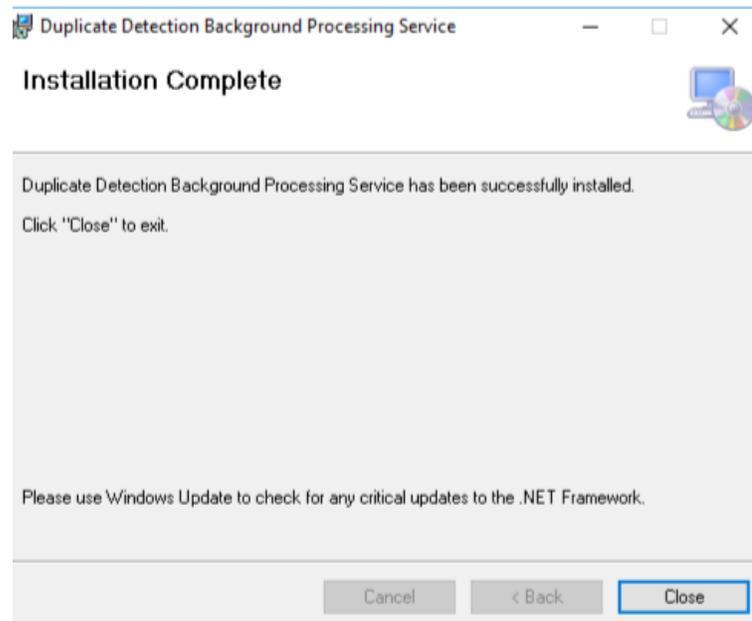
3. Select install path and click "Next"



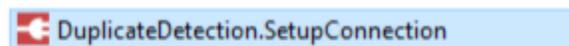
4. Click "Next"



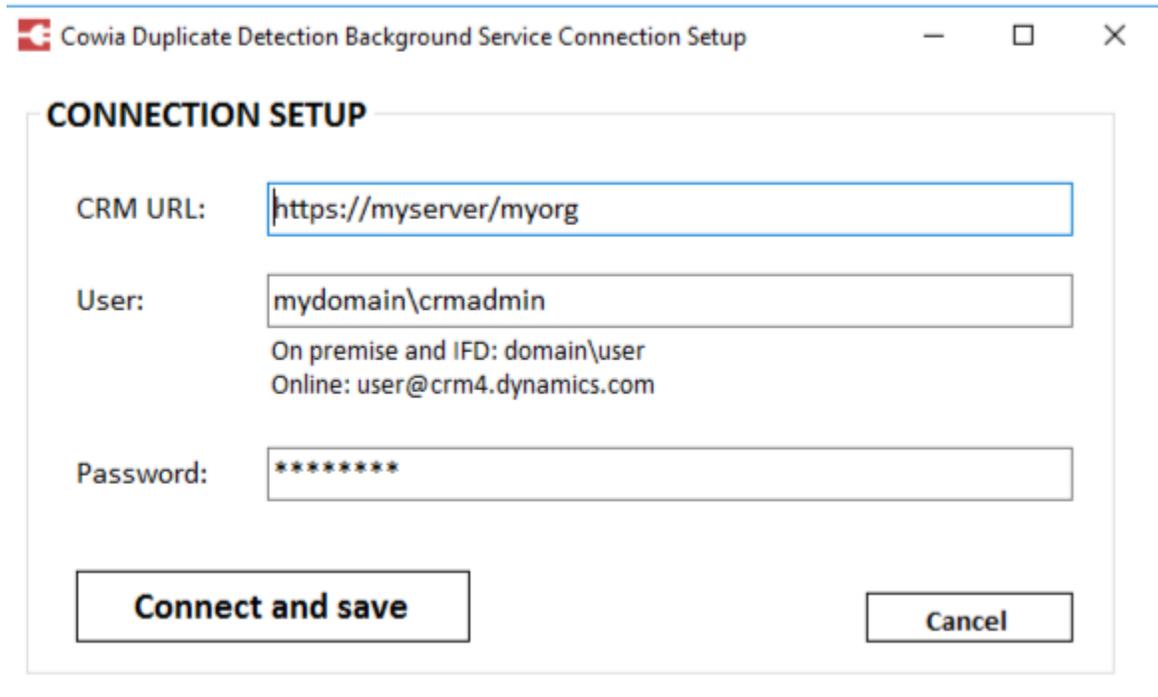
5. Click "Close"



6. Go to installed path folder, if you haven't changed install path, then you can find it here:  
C:\Program Files\Cowia Solutions ApS\Duplicate Detection Background Processing Service
7. Run DuplicateDetection.Setup.Connection



- 8. Type your CRM URL and user/password and click 'Connect and save' If successful, it will close the window and if it can't connect, it will give error



- 9. That's it, you can now run background jobs directly from Dynamics CRM

## Support

SUPPORT: send e-mail to [support@techdio.dk](mailto:support@techdio.dk) (Operating hours 9-17 UTC+2)

For newest updates and more information please visit [www.duplicate-detection.com](http://www.duplicate-detection.com)

**Techdio – DD customers**

Customers from USA, UK, Canada, Holland, Denmark, Germany, Sweden, Czech Republic and many other countries