

# Mautic 5 Bounce Management

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## Introduction

My name is Matic Zagmjaster, I have been working with Mautic since version 2.x. I have written some plugins for Mautic and maintain a couple of instances. Over the years I managed to gain some knowledge about Mautic core.

I am looking for funding for implementation of the solution proposed in this document.

In addition to the high level overview of new features and time estimate, the document also includes my research and technical breakdown of things we need to do in order to bring bounce management in Mautic to the next level. Appendix sections at the end are not something you have to be concerned about unless you care about the implementation process/details.

## Credits

I would just like to do a quick shoutout to other amazing people that helped me create this document.

- Ruth Cheesley
- Jan Linhart
- Jakub Olexa

**Thank you.**

## The Problem

Mautic processing of email webhooks from Omnivory, Mailgun and similar providers is a bit limited due to insufficient underlying model where we store information coming from webhooks. This proposal aims to add ability to the Mautic core in a way so that transport plugins can leverage them and map it more precisely to the Mautic core model.

## Proposed Solution

For the problem described above I am suggesting that we add **a complaint flag** into the DNC entity so transport plugins can use it when the provider (Omnivory, Mailgun, etc.) suggests so.

We would also like to introduce **soft bounces** into Mautic core in a way so that we still send to contacts that soft bounces, but if the soft bounce happens multiple times that translates to the DNC entity for that lead with a **hard bounced flag**.

**How many times contact soft bounces consecutively before it translates to hard bounced** is configurable with the setting in Configuration -> Email Settings.

We introduce **soft bounce categories** so that transport plugins can categorize and we can display that data to the end user.

We would **add the following filters on segments**: filter for DNC complaint reason, soft bounce filter and soft bounce of specific category.

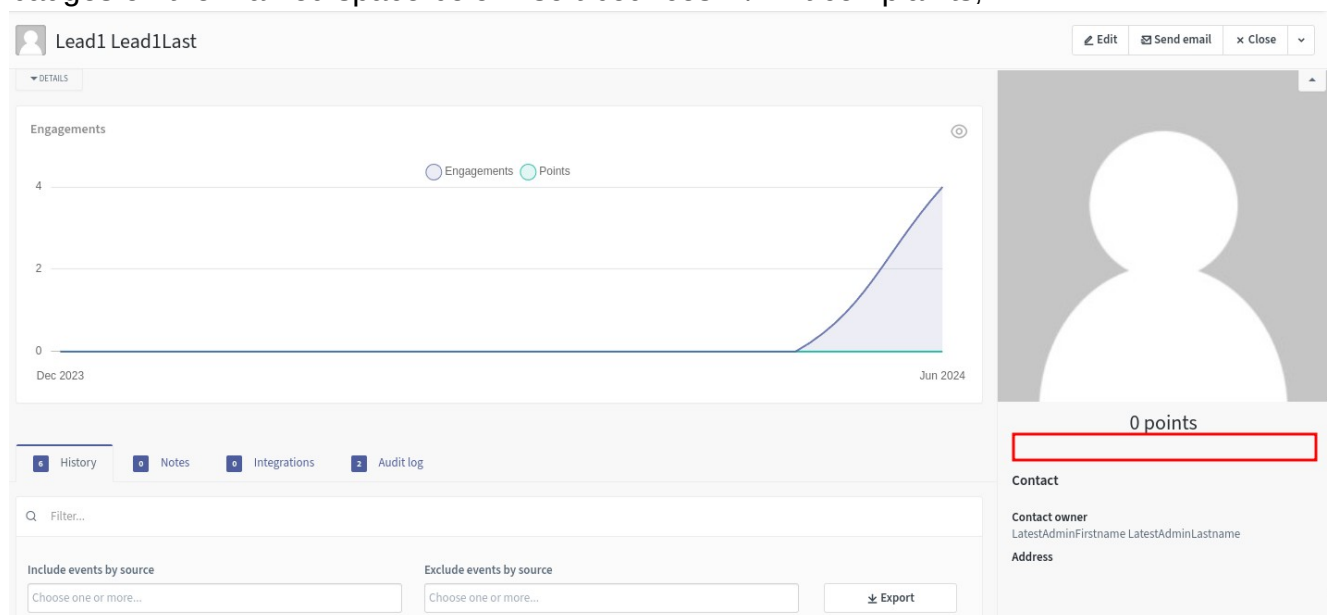
We would like to show some more statistics about **bounced, soft bounced and complaint** contacts on the email list page.

We would like to **show the count of soft bounces & complaints on the contact page**. Also show how many **soft bounces until the hard bounce** for the given contact.

Show **count of soft bounces & complaints on email list view**.

## Reporting soft bounces & complaints in Mautic Web UI

“We would like to **show the count of soft bounces & complaints on the contact page**. Also show how many **soft bounces until the hard bounce for the given contact**.” - We add badges on the marked space below: soft bounces: x/limit complaints,



“Show **count of soft bounces & complaints on email list view**.” - We add badges on the

marked space below: soft bounces X; complaints X

	Name	Category	Stats	Date created	Modified date	Created by	ID
<input type="checkbox"/>	test1	Uncategorized	0 Sent 0 Read 0% Read	June 18, 2024	June 18, 2024	LatestAdminFirstname LatestAdminLastname	1

## What the solution does not include

Things under this section need to be discussed and researched more before we consider it for the implementation. For now content under this section serves as a reminder where we can take the implementation after we do some

### Mautic Double opt-in

Another feature that is missing from Mautic core is double opt-in. While double opt-in is not in scope of the proposed solution, I think that this work adds a strong base on which we can base double opt-in later on.

### Wait for X days before trying to send any email again

Wait for X days before trying to send any email again (question #9)

### Implement queue for adding soft bounces, complaints and DNC records

If the email\_stats table is large, callback subscribers in transport plugins will take a long time, because they will query a large table for each lead. (question #12)

### Improve reporting on soft bounces and complaints

How to do reports/where to show the data in GUI for complaints and soft bounce? (question #11)

### Show count of soft bounces & complaints on Campaign Actions view

We add badges on the marked space below: soft bounces X; complaints X

Preview	Actions	Contacts
0%	0	0
Send marketing message		Messages sent

## Estimate

I divided required work into separate milestones. Here is the estimate for each milestone:

1. Milestone 1: Add basic components for soft bounces and complaints - Estimate: 81 -

- 110 h
- 2. Milestone 2: Enable transport plugins to leverage new components - Estimate: 18 - 20 h
- 3. Milestone 3: Display info in UI - Estimate: 38 - 60 h

See the “Appendix: Technical Breakdown” section for breakdown of separate milestones.

## Contact

If Mautic brings value to your business and you are interested in financing me either for part of the solution or for the entire solution, please reach out. Thank you for your consideration.

- Email: [maticzajmajter@gmail.com](mailto:maticzajmajter@gmail.com) (preferred)
- LinkedIn: <https://www.linkedin.com/in/matic-zajmajter/>
- Mautic Slack: @mzajmajter
- Mautic Forum: <https://forum.mautic.org/u/mzajmajter/summary>

## Appendix: Technical Breakdown

### Legend for tasks under milestone sections

Symbol	Explanation
[number]	Numbers between square brackets represent estimated required hours for the completion of the task.
[x]	It was considered for the implementation but removed from the plan.
[?]	The task might be considered for the future but not for the initial implementation.
[L]	Task is a subtask of another task.

### Lead Event Log for soft bounce entity (deprecated in favor of email\_soft\_bounces & email\_complaints tables)

```
{
  "id": "<auto-generated>",
  "lead_id": "<leads.id>",
  "user_id": null,
  "user_name": null,
```

```

"bundle": "email",
"object": "callback",
"action": "soft_bounce",
"date_added": "<utc_now()>",
"properties": {
  "category": "<category-alias>",
  "channel": "email",
  "channel_id": "<email-id|null>",
  "comments": "<response-from-server>",
  "email_stats_id": "<email_stats.id>",
  "tracking_hash": "<email_stats.tracking_hash>"
  /**
   * probably some more props.
   */
}
}

```

## Queries we need for conversion between soft and hard bounce

\*Note: The exact queries are a bit different now since we decided to move this into separate tables, but we still need to get the info specified in description of the query

Get date of first and last soft bounce

```

SELECT id, date_added
FROM lead_event_log
WHERE action = 'soft_bounce'
ORDER BY date_added DESC
LIMIT 3; /*3 is value from mautic core global config*/
=> firstSoftBounceDate, lastSoftBounceDate

```

Check if we sent any successful messages between the bounced once

```

SELECT id, lead_id
FROM email_stats
WHERE date_sent > firstSoftBounceDate AND date_sent < lastSoftBounceDate AND
is_failed = 0;
=> if this query returns records then lead is still contactable
=> if it does not return any records we have consecutive soft bounces which result in hard
bounce (DNC bounced)

```

Count soft bounces per campaign (it seems that statistics on campaign view needs to be thought out better, the numbers on campaign view will match with the numbers on email list view)

```
SELECT esb.channel_id, COUNT(esb.id)
FROM email_soft_bounces esb
LEFT JOIN campaign_events ce ON (esb.channel_id=ce.channel_id)
WHERE ce.type IN ('message.send', 'email.send')
GROUP BY esb.channel_id
```

## Email Soft Bounce Entity (email\_soft\_bounces)

```
{
  "id": "",
  "lead_id": "<leads.id>"
  "category": "<category-alias>",
  "channel": "email",
  "channel_id": "<email-id|null>",
  "comments": "<response-from-server>",
  "email_stats_id": "<email_stats.id>",
  "date_added": "",
  "date_modified": "",
  "date_bounce": "",
  /**
   * probably some more props.
   */
}
```

## Email Complaint Entity (email\_complaints)

```
{
  "id": "",
  "lead_id": "",
  "email_stats_id": "",
  "date_added": "",
  "date_modified": "",
  "date_complaint": "",
```

```
"source": "<lead email domain>",  
}
```

## Soft Bounce Category

(hard coded into entity class)

```
{  
    "alias": "<category-alias>",  
    "displayName": "<translatable strings>"  
}
```

## Details about Soft bounces

Jakub: "soft bounce should result in the DNC after a set amount of consecutive attempts. for example if 3 campaigns result in a mailbox full soft bounce, you want to add the recipient to DNC list. meanwhile you want to keep track of these soft bounces as they are important to provide correct insight in reports."

## Milestone 1: Add basic components for soft bounces and complaints

[1] Extend DNC entity with

- [L] Add COMPLAINT flag

[4] Add new entity EmailSoftBounce

- [L] Add soft bounce categories using blueprint under "Soft Bounce Category"

- [L] Add basic model

  - [L] Add method getSoftBounceCategoryByAlias(alias)

  - [L] Add method createSoftBounceRecord(lead, channel\_id,

mautic\_soft\_bounce\_category,

[4] Add new entity EmailComplaint

- [L] Add basicModel so you can implement addComplaintBy methods in

TransportCallback

[2] Make transport plugin implement a method like mauticMapSoftBounceCategory() that takes a transport specific category and converts it to mautic soft bounce category.

[5] Extend EmailBundle/Model/TransportCallback (use the createSoftBounceRecord to implement the methods below)

- [L] Add method addSoftBounceByHashId

- [L] Add method addSoftBounceByAddress

- [L] Add method addSoftBounceByContactId]

- [L] Add methods addComplaintBy\* - write to complaints table & for the first complaint

also create the DNC.

[1] Add config option for - How many times contact can soft bounces before it translates to hard bounced is configurable with the setting in Configuration -> Email Settings.

- [8] Make mautic core respect the limit from config to set hard bounced on contact
  - [L] When email soft bounces email\_stats.is\_failed is set to true
  - [L] Add record above to email\_soft\_bounces
  - [L] Count soft bounces help yourself with queries above and if limit of soft bounces exceeds the limit in mautic config add lead to DNC table (hard bounce)
    - [L] Apply the logic specific to soft bounce categories (like: if soft bounce is of type Out office then do not increment )
- [6] Add complaint to segment filters
- [6] Add soft bounce filter to segment filters
- [4] Add soft bounce with specific category to segment filters
  - [L] Each category has its own segment filter
- [40] Extend tests & start PR process

## **Milestone 2: Enable transport plugins to leverage new components**

- [8] Example plugin leveraging new components to enable better bounce management (maybe this example could be done for Omnivory integration)
- [6] Write docs on how to actually implement the transport to get the most out of Mautic bounce management - detailed description of transport callback
- [4] Extend tests & start PR process

## **Milestone 3: Display info in UI**

- [4] Add counters for soft bounces and & complaints to contact view page
  - [L] Add method that returns the counter to repository class
  - [L] Fix the template so it includes the the badges with counters
- [4] Add counters for soft bounces and & complaints to email list view pages
  - [L] Add method that returns the counter to repository class
  - [L] Fix the template so it includes the the badges with counters
- [12] Write soft bounce into History tab
  - [L] Make a new subscriber on TIMELINE\_ON\_GENERATE
  - [L] Adjust templates
- [2] Write first complaint that results in DNC into History tab
  - [L] Make a new subscriber on TIMELINE\_ON\_GENERATE
  - [L] Adjust templates
- [16] Extend tests & start PR process

## **Needs further discussion - not included in implementation for now**

- [?] Improve tracking hash generation since its not unique (use uuid4 or tracking hash= hash(lead\_id) + email\_hash)
- [?] Complaints on History tab - Add a special filter that will list all complaints if the user chooses to.
- [x] Display indicator for soft bounce on contact list
- [x] Show how many emails did not get sent due to the fact that the DNC already exists



## Appendix: Questions

**1. How many DNC records per lead should be in a DNC entity? Is it one per each channel (like email/sms) or can it be more?**

A: Assume more than one per channel per lead.

**2. If I want to display soft & hard bounce in email stats where would I store that (probably not in DNC entity)**

A: Separate tables for soft bounces and complaints.

**3. Will EMAIL\_PRE\_SEND be enough, how do I know if email is transactional or marketing from event data? I think we are still better off creating a new event. Event needs to have at least lead, email\_type, dnc records**

A: It's already in the core (not made public yet), and so the question is not relevant anymore.

**4. Does the estimation seem accurate (if not, why)?**

A: Its OK, consider adding some buffer to the original estimate.

**5. How to make a matrix which helps people visualize when an email would and would not be sent?**

**6. Should frequency rules be considered in the event subscribers?**

A: Not relevant anymore.

**7. Can I get the categories for soft bounces?**

A:

bad-connection

bad-domain

bad-mailbox

inactive-mailbox

invalid-sender

message-expired

no-answer-from-host

out-of-office

policy-related

protocol-errors

quota-issues

relaying-issues

routing-errors

spam-related

**7.1. What are the categories that should not increment soft bounce “counter” for specific lead?**

A: out-of-office

**8. For soft bounces, is there a time frame in which it can be retried even after 3 consecutive failed attempts (like a year or something)?**

A: definitely not and especially not after 1 year. for quota-issues (mailbox full) soft bounces it would be ok to retry after 2-4 weeks after last failure but even that would be a bad idea because you would actually have to keep track of what was the send frequency before the bounce. You never want to stay out of contact for more than 3 months in total.

**9. Does it make sense to add a setting in Mautic for soft bounces that says: “wait for X days before trying to send any email again”?**

A: Yes and no - depends on how much work it involves. It would be a nice option to have to wait up to 14 days (which would be the max limit I'd allow) before the next campaign is sent to the recipient.

(Ruth) I think if it's an option between a UI-based setting and a config file setting, yes we should have a UI setting. I think users would expect to be able to configure this option. We should make sure that we give strong advice/best practices so people don't do stupid things. We should also be clear how this works with the existing send frequency limitations (e.g. which one wins, how long will things get queued for etc)

(Matic) The way I envisioned this is a setting in Email Settings (UI). Let's say the min wait limit until specified otherwise is: 7 days and max. is 14 days (this is validation rule on the form).

(Matic) After thinking about this some more, part of this feature can be simply implemented and I do not think it adds much time to the overall.

Let me first break-down the issue a little more, we have two things:

- Thing #1: For a given period we have to prevent sending an email to the contact.
- Thing #2: Any email that would get sent out to the lead during the waiting period would have to be retired after the limit specified in settings.

Thing #1 can be relatively simply implemented by this (I do not think it adds many hours to the implementation plan above):

- You add a DNC record with reason TEMPORARY\_SOFT\_BOUNCE and comments: Email with ID: <email\_stats,ud> soft bounced, contact is <n> bounces away from permanent block.
- You implement a new command that looks over a cron table and deletes the DNC record with reason TEMPORARY\_SOFT\_BOUNCE, looking at dateAdded and if now() - dateAdded >= limitFormSettings, it deletes the flag, if not it skips it.

Thing #2 is I think more tricky but it should be doable, it would require more research and a lot more time I think, but what I would do is I would mark email in email\_stats as non-failed and non-sent. Then I guess I would need to somehow add it to the queue again (this could be probably done by the above command). This is just my thinking on the first try, so the approach might not be OK.

**10. Complaints do not get any categories right, and complaint is something that you get only once?**

A: There is no categorization for FBL but it is valuable to store the source of the complaint, eg. Yahoo, Comcast, etc. You can get multiple complaints from the same person and you should log them but only the first one counts for DNC

**11. What do we need in terms of reports (side note: maybe it makes sense to leave it out for now to not complicate it too much)?**

A: I think that there would be a few places you'd want to see the data e.g. in the context of a specific email, or a specific campaign, a specific user even, perhaps?

Basic info would be date, bounce code/category, number of bounces per email / campaign? Marketers would for sure want to be alerted if there's a sudden rate change in bounce rates or a trend in either direction, I think.

I'd expect to be able to use Mautic's report builder to make my own with tables and charts, and to be able to group by (for example) email ID, campaign ID etc? This would be a good discussion to have on the portal to get input from users. I think it could be that we did a basic report in phase 1 and maybe expand on it in phase 2?

Here's some examples from documentation of other platforms: [Salesforce bounce report](#), [Campaign Monitor](#), [Oracle](#), [SugarCRM](#), [Mailchimp](#)

**12. Does it make sense to perform this task via some kind of queue: “[L] Count soft bounces help yourself with queries above and if limit of soft bounces exceeds the limit in mautic config add lead to DNC table (hard bounce)”. If the email\_stats table is large, callback subscribers in transport plugins will take a long time, because they will query a large table for each lead?**

A: Yes it makes sense, but its an extra task something to consider in later stages (milestones).

**13. Are we sure storing soft bounces info is best done in the lead\_event\_log table? One potential issue I see is how we can easily query the soft bounces information. It feels like this should be a separate entity connected to the email\_stats table. I am not opposing the idea of using the lead\_event\_log, just wanna double check.**

A: We use separate tables.