Phishy Mailbox Documentation

Version 1.0.0

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Contents

1 Introduction

Phishy Mailbox is software designed for researching the human factors of phishing. It uses a user interface inspired by Microsoft Outlook, allowing participants to organize emails into folders. This enables them to distinguish phishing emails from other emails. To ensure that attention is not solely focused on phishing and to obtain ecologically valid data, participants are presented with the task as an inbox task within an assessment center.

The software can be broadly divided into two areas: one for researchers, which facilitates the setup of studies and the subsequent export of collected data, and another for participants. In the following sections of this documentation, we will provide detailed explanations of the various features and capabilities offered by Phishy Mailbox, covering both technical aspects and practical applications, as well as the significance of the data obtained.

2 Installation and Setup

The installation and setup of the application consist of two essential components: configuring the PostgreSQL database and setting up the Next.js server. The necessary steps for both components are detailed below.

2.1 Database Setup

The application is based on a PostgreSQL database. To simplify setup, it is recommended to use the `docker-compose.yml` file located in the root directory.

> **!** The password in the `docker-compose.yml` file, used during development, should be changed for a production deployment.

2.2 Server Setup with Next.js

The Next.js server is responsible for delivering the SPA frontend and providing the API. It is recommended to refer to the official Next.js documentation before proceeding with the setup. (`https://nextjs.org/docs/pages/building-your-application/deploying`)

For deployment, tools such as Supabase for the database and Vercel for hosting have proven suitable during the development phase. While the default settings can generally be retained, specific adjustments are necessary:

- Build Command in Vercel: The following command should be set as the build command in Vercel:

```
yarn prisma generate; yarn next build; yarn
    ↪ prisma db push; yarn node ./prisma/seed.js
```

- Environment Variables: The following environment variables need to be customized:
  - `NEXTAUTH_SECRET`: This should be set to a random string to ensure authentication security.
  - `DATABASE_URL`: This variable should represent the connection URL to the Supabase database.

3 Features for Researchers

3.1 Login, Language Selection, and Structure

To use the software, researchers can log in at the URL `/admin`, for example, at `https://phishy-mailbox.vercel.app/admin/`. Logging in requires an email address and a password. By default, the email address `admin@example.com` and the password `123456` are provided and must be changed.

If incorrect login credentials are entered, an error message will appear. The current version does not include a password reset function. If the password is forgotten, it must be reset directly through the database.

Upon successful login, researchers will be redirected to the Phishy Mailbox back-office interface. This interface consists of the "Emails" and "Studies" sections.

To change the language, which defaults to the browser settings, a language switcher is located at the bottom left (the current version supports switching between German and English).

3.2 Emails

The email overview page, accessible by clicking on "Emails" in the sidebar after logging in (as described in Section 3.1), contains a list of email entries. Each entry represents an email and includes information and actions that can be used for management. These actions are "Edit" and "Delete" for emails.

The "Create" button is located in the header next to the title, and it leads to creating a new email entry.

Below the table, there is an area for "Uploading Multiple Emails" (as described in Section 3.2.2).

3.2.1 Creating and Editing Emails

This form, accessible via the "Create" button or the "Edit" action on the overview page for emails, contains a combined form for creating and editing an email.

Above the form, there is an area for uploading `.eml` files, which can be triggered by clicking on the field or by drag-and-drop. These files can be saved from existing emails in common email programs (e.g., through the "Download Message" option) and allow for easy importing of emails into Phishy Mailbox. After uploading, the fields in the form are populated with the data from the email, which can then be adjusted.

> **!** Emails often contain personal data, such as email addresses, customer numbers, and IP addresses. Ensure that only the information in the emails that should be visible to participants is included by editing the emails.

The form itself consists of the following fields:

- **Identifier in the Back Office**
  This unique identifier is used for easy retrieval of this email for editing and also in the later data export. It should be unique.
- **Sender**
  - **Email**
    In this field, enter the displayed email address of the sender.
  - **Name**
    Here, enter the displayed name of the sender.
- **Subject**
  In this field, enter the subject of the email. The subject provides a brief description of the email's content and is visible in the email list for participants without opening the email.
- **Header**
  In this section, you can enter the header information of the email. The header information is visible in the participant view after clicking on "Show Details."

- **Content (HTML)**
  In this section, enter the actual content of the email in HTML format. Here, you can include the text of the email, images, links, and other HTML formatting elements to design the email. Active elements such as scripts can be entered but will not be executed when the emails are displayed. Existing links can be clicked and hovered over but will lead to a fixed 404 page of the application when clicked.

3.2.2 Uploading Multiple Emails at Once

On the email overview page, new emails can be uploaded below the table. Multiple emails can be uploaded simultaneously by clicking on the area or using drag-and-drop (unlike creating a single email). The upload occurs immediately after selection, and progress is indicated by a loading bar. Successful upload is confirmed by an update to the table, which now contains the new emails and allows them to be edited.

> Emails often contain personal data such as email addresses, customer numbers, and IP addresses. Ensure that only the information in the emails that should be visible to participants is included by editing the emails.

3.2.3 Deleting Emails

On the email overview page, individual emails can be deleted from the table. They can only be deleted if they are not used in any studies. To remove the email, it must first be removed from the studies.

3.3 Studies

The studies overview page, accessible by clicking on the "Studies" section in the sidebar after logging in, contains a list of all created studies. Each entry represents a study and includes information and actions that can be used for management. These actions are Export, Edit, and Delete for the respective study.

The "Create" button is located in the header next to the title, which leads to creating a new study.

3.3.1 Creating and Editing Studies

This form, accessible via the "Create" button or the "Edit" action on the study overview page, contains a combined form for creating and editing a study.

The study should not be altered after access codes have been sent to participants.

The form itself consists of the following fields:

- **Name**
  Name of the study. This is only displayed in the researcher's area and should be unique for easier retrieval.
- **Duration in Minutes**
  The processing time in minutes for participants. The timer starts after the first sample email with the explanation text below is moved to a folder. After the processing time expires, no more emails can be moved, and the content is displayed.
- **Explanation Text Before Start**
  A text area where introductory text for the study can be entered. This text is displayed to participants before the study begins and can contain important information and instructions, especially regarding contextualization within an inbox task in the assessment center.
- **Link Before Start**
  Here, a link can be entered, which will be displayed to participants along with the explanation text after entering the access code. It is possible to use a placeholder code in the link, which will be replaced by the actual access code. For example: https://example.com/code. If a link is entered here, the click is also enforced. This can be useful, for example, for collecting additional data about participants. If no link is entered, participants can start processing directly.
- **Folders**
  This section allows you to create folders for the study. A new folder can be added using the "Add New" button at the bottom left, and a name can be assigned. Existing folders can be selected on the left to edit the name or remove the folder. The order of the folders can be changed using the arrows on the left side.

  In initial tests, the folders "Edit Now," "Edit Later," and "Junk/Spam" have proven to be useful.

- **Emails**
  In this section, the emails used in this study are defined. A new email can be added using the "Add New" button at the bottom left and selected.

Existing emails for this study can be selected on the left to edit or delete them.

- **Explanation Text After Processing**
  A text area where a concluding text for the study can be entered. This text is displayed to participants after completing the study and can explain the next steps, for example.

- **Link After Processing**
  Here, a link can be entered, which will be displayed to participants after processing along with the explanation text. It is possible to use a placeholder code in the link, which will be replaced by the actual access code. For example: https://example.com/code. If no link is entered, a link to the access code entry page will be displayed instead.

Below the form is an area for managing participants in the study. The table shows all access codes created so far, along with the creation date and the current status (processing started, processing completed). To add more participants to the study, the form below can be used, specifying the quantity (up to 100 per form usage). The access code is generated randomly and is at least two digits. Depending on the number of access codes created so far, codes with more digits can be automatically generated.

3.3.2 Exporting Studies

On the study overview page, individual studies can be exported in the table. This exports all data from all participants as a list of events in CSV format and offers it for download. The columns of the CSV are:

- **Access Code**
  The access code used for participation.

- **Type**
  The name of the event.

- **At**
  The time of the event.

- **Email-ID**
  If the event concerns a single email, the unique ID of the email.

- **Email Back-office ID**
  If the event concerns a single email, the identifier assigned during email creation.

- **Event-ID**
  The unique ID of the event.
- **From Folder**
  If the event involves moving from one folder to another, the name of the folder from which it is moved. If moved from the inbox, the field is empty.
- **To Folder**
  If the event involves moving from one folder to another, the name of the folder to which it is moved. If moved to the inbox, the field is empty.
- **Scrolled To**
  If the event is the scroll event within an email, the percentage scrolled from the top is displayed as a number between 0 and 1.
- **URL**
  If the event is a click or hover over a link in the email, the URL of the link.
- **Link Text**
  If the event is a click or hover over a link in the email, the text of the link.

3.3.3 Deleting Studies

On the study overview page, individual studies can be deleted in the table. They can only be deleted if there are no participants yet.

4 Participant Area

4.1 Starting Participation

Participation in a study begins with entering a short numeric code distributed in advance by researchers as the access code. In the same view, participants can also switch the language between German and English.

4.2 Instructions

After successful authentication, participants gain access to the study instructions configured by researchers. Additionally, clicking on a mandatory link to additional features may be necessary.

The instructions are displayed in the form of an email. The transition to the next step is made by moving this email to a folder.

4.3 Sorting Emails

The interface for sorting emails is divided into three main areas: a list of email folders, an overview of the emails in the selected folder, and a detailed view of the selected email.

Participants can move emails to a folder by drag-and-drop after reading them. Participants also have the option to view additional details of an email. A modal window displays header information to help participants establish a basis for email sorting.

A countdown displaying the remaining time serves as a temporal reference for participants in the upper right corner.

4.4 Completing the Study

Once all emails are sorted or the specified time has elapsed, a modal window with custom text and a link that can lead to further information will be displayed.