

# **Arachnid: A Tool for Visualizing Web Email**

## **Installation and User Guide**

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## 1 How to use this guide

To install and use Arachnid successfully, please follow the guidelines in this document.

The syntax is as follows:

*text* = important note or bug information

**text** = fill this in with your own information

**text** = an application, technology, file, heading, or something clickable

**text** = a Terminal instruction or code

## 2 Installation

This manual was written for installation on **Mac OSX** with **XAMPP** running **Apache** and **MariaDB**. Folder structure and file permissions may alter depending on your operating system. Everything Web related should be similar from one Web server to another.

*NOTE: Arachnid is best viewed in Google Chrome.*

*NOTE: This is an alpha release and there are still a lot of bugs.*

### 2.1 Prerequisites

Before installing Arachnid, the following tools need to be installed on your system. To make installation faster and easier, install a tool called **XAMPP**

(<https://www.apachefriends.org/download.html>) that includes all of these tools. **Python** should already be installed on your Mac, but if not, it may be downloaded here:

<https://www.python.org/downloads/release/python-2710/>. **Python 2.7.10** and above will work, and is untested with **Python 3**.

- **Apache**
- **MySQL or MariaDB**
- **PHP5+**
- **Python 2.7.10+**

## 2.2 Arachnid

2.2.1. Unzip the **arachnid\_v1.0.zip** that comes with the installation media.

2.2.2. Move the entire extracted **arachnid\_v1.0** folder to

**/Applications/XAMPP/htdocs/.**

2.2.3. Open a Terminal and type the following commands one at a time:

```
cd /Applications/XAMPP/htdocs/  
sudo chmod -R 755 arachnid_v1.0  
sudo chown -R daemon:daemon arachnid_v1.0/uploads/  
sudo chown -R daemon:daemon arachnid_v1.0/bizDataLayer/logs/
```

*NOTE: All logs are generated dynamically in arachnid\_v1.0/bizDataLayer/logs/*

2.2.4. Create a file called **dbInfo.inc** in **/Applications/XAMPP/.**

2.2.5. Paste the following code in **dbInfo.inc** with your database's username and password then save the file.

```
<?php  
define('DB_HOSTNAME', 'localhost');  
define('DB_USERNAME', 'your_username');  
define('DB_PASSWORD', 'your_password');  
define('DB_DATABASE', 'arachnid');  
  
define('IP_ADDRESS', 17);  
define('REQUEST_TIME', 18);  
?>
```

2.2.6. Move **/Applications/XAMPP/htdocs/arachnid\_v1.0/Token.class.php** to

**/Applications/XAMPP/Token.class.php.**

2.2.7. Your Web directory structure should now look like the following:

```
/Applications/XAMPP/dbInfo.inc  
/Applications/XAMPP/Token.class.php  
/Applications/XAMPP/htdocs/arachnid_v1.0/
```

2.2.8. At this point, Arachnid is not fully functional. However, you may now navigate to

[http://localhost/arachnid\\_v1.0](http://localhost/arachnid_v1.0), which redirects to

[http://localhost/arachnid\\_v1.0/login.php](http://localhost/arachnid_v1.0/login.php).

2.2.9. In the **Terminal** type: `which python`

2.2.10. In your favorite text editor, open

```
/Applications/XAMPP/htdocs/arachnid_v1.0/bizDataLayer/uploadBizData.php
```

2.2.11. On line 157, replace the red text with your output from **step 2.2.9**.

```
$parse_py = '/usr/local/bin/python  
/Applications/XAMPP/htdocs/bizDataLayer/parse_mbox.py  
./uploads/' . $file_hash;
```

2.2.12. Open **Google Chrome** and navigate to <http://localhost/phpmyadmin/> and log in.

2.2.13. Click the **Import** tab.

2.2.14. Under **File to import**, click **Choose File**.

2.2.15. Navigate to `/Applications/XAMPP/htdocs/arachnid_v1.0/` and select the

```
arachnid.sql
```

 file.

2.2.16. Make sure the **character set** is set to **utf-8** and the **Format** is set to **SQL**.

2.2.17. Click **Go** and you should now have a new database called **arachnid**.

## 2.3 PHP & MySQL/MariaDB Configuration

In order to upload files up to 4 GB, some settings in your **php.ini** and **my.cnf** files need to be altered. The following settings are found to work in some cases but not in others.

*NOTE: Changing these settings does not guarantee proper functionality and may decrease performance.*

2.3.1. Set the following settings in `/Applications/XAMPP/etc/php.ini`.

```
max_execution_time=0  
max_input_time=-1  
memory_limit=4098M  
post_max_size=4097M  
file_uploads=On  
upload_max_filesize=4096M  
date.timezone=America/Chicago
```

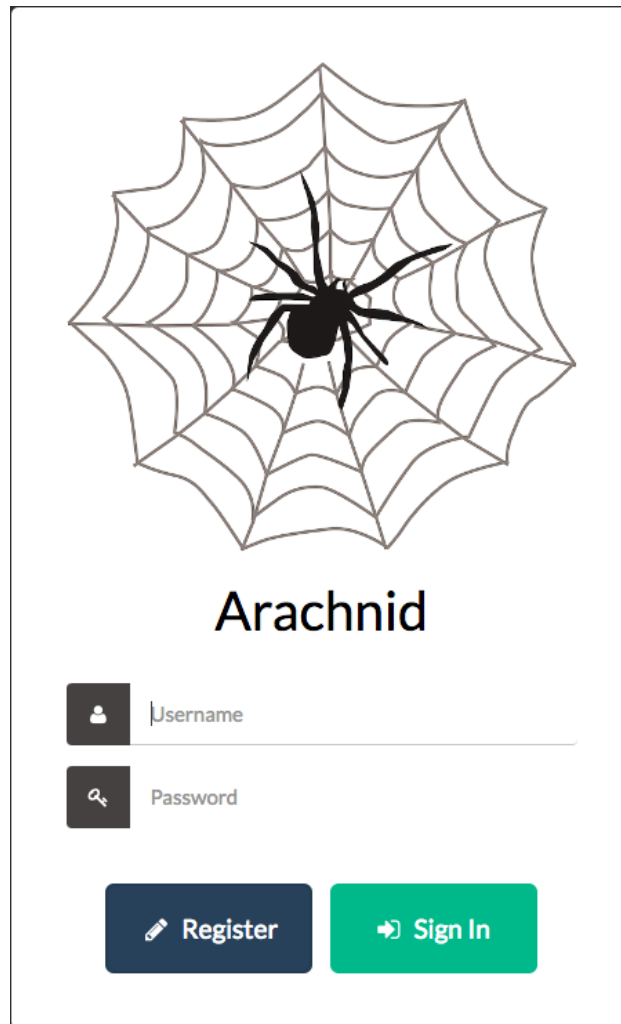
- 2.3.2. Set the following settings in `/Applications/XAMPP/etc/my.cnf`. All settings are found under the `[mysqld]` directive.

```
max_allowed_packet = 1073741824
innodb_buffer_pool_size = 256M
innodb_log_file_size = 4096M
innodb_log_buffer_size = 8M
```

## 3 Usage

### 3.1 Registration

- 3.1.1. Navigate to [http://localhost/arachnid\\_v1.0/login.php](http://localhost/arachnid_v1.0/login.php).
- 3.1.2. Click **Register**.



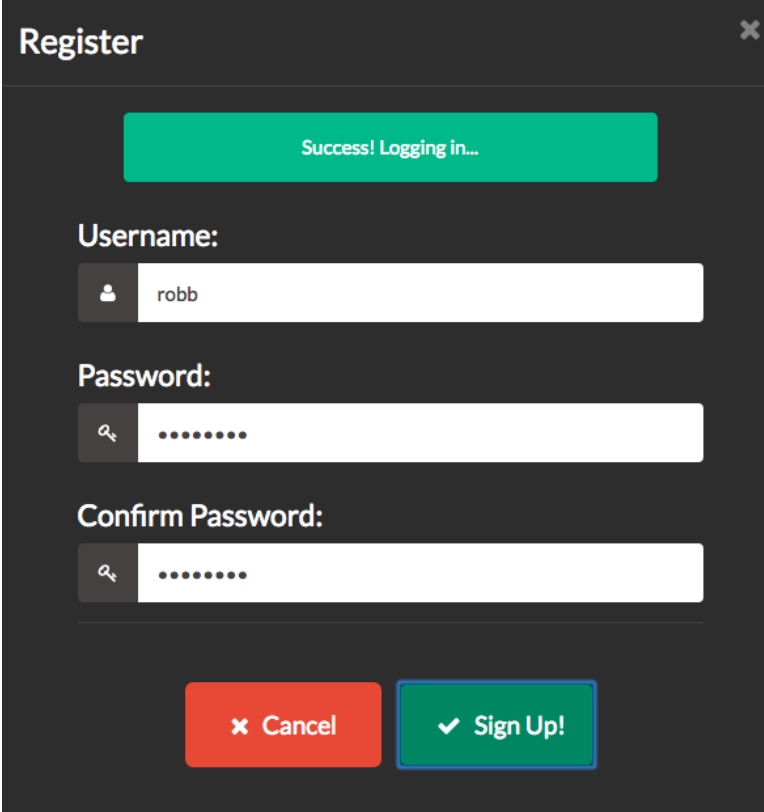
The image shows a web form for the 'Arachnid' application. At the top is a large illustration of a spider on a web. Below the illustration is the title 'Arachnid' in a large, bold, black font. Underneath the title are two input fields: 'Username' with a person icon and 'Password' with a key icon. At the bottom of the form are two buttons: a dark blue 'Register' button with a pencil icon and a green 'Sign In' button with a right-pointing arrow icon.

3.3.3. In the pop-up modal, enter a new **username** followed by a **password** twice.

Username must be 4 or more alphanumeric characters. Passwords must be 8 to 20 characters.

3.3.4. Click **Sign Up!**

3.3.5. If the request is successful, you will see a success message and will be logged into the system.



3.3.6. If you don't want to register, click **Cancel** and the modal disappears. You may also click the X or outside the modal for it to disappear.

3.3.7. The following are possible errors you may run into. Please read them carefully.



Register

The username field is required.  
The password field is required.  
The confirm password field is required.

Username:

4 or more alpha-numeric characters

Password:

8 or more characters

Confirm Password:

Enter password again

✕ Cancel

✓ Sign Up!

Register

The username field must be at least 4 characters in length.  
The password field is required.  
The confirm password field is required.

Username:

rob

Password:

8 or more characters

Confirm Password:

Enter password again

✕ Cancel

✓ Sign Up!

Register

The password field must be at least 8 characters in length.

Username:

robb

Password:

....

Confirm Password:

....

✕ Cancel

✓ Sign Up!

Register

The confirm password field does not match the password field.

Username:

robb

Password:

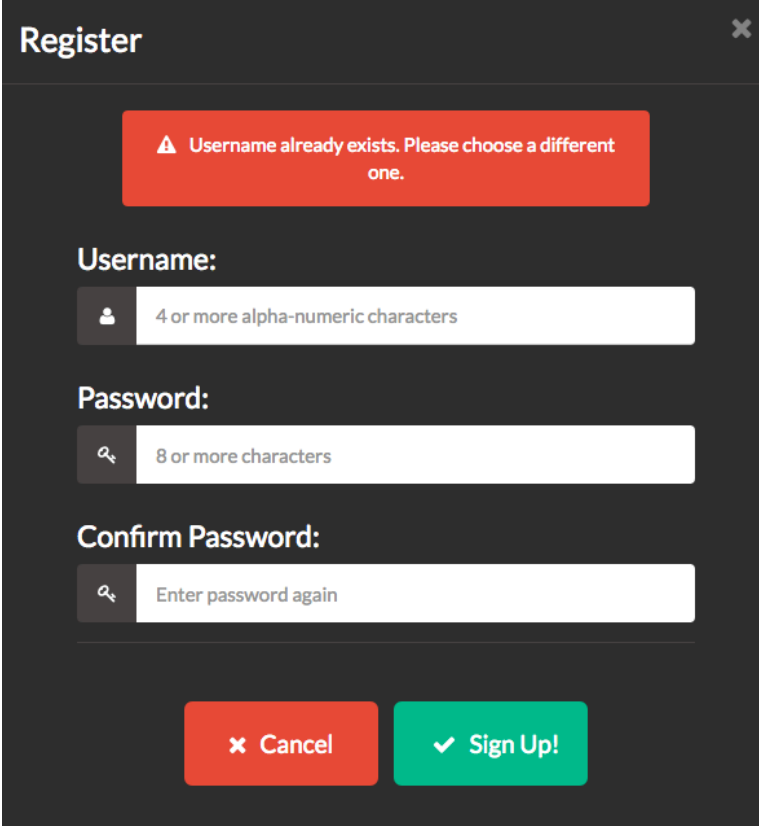
.....

Confirm Password:

....

✕ Cancel

✓ Sign Up!



The image shows a 'Register' form with a dark background. At the top, there is a red error message box that says 'Username already exists. Please choose a different one.' Below this, there are three input fields: 'Username:' with a placeholder '4 or more alpha-numeric characters', 'Password:' with a placeholder '8 or more characters', and 'Confirm Password:' with a placeholder 'Enter password again'. At the bottom, there are two buttons: a red 'Cancel' button and a green 'Sign Up!' button.

Register

⚠ Username already exists. Please choose a different one.

Username:

4 or more alpha-numeric characters

Password:

8 or more characters

Confirm Password:

Enter password again

✕ Cancel ✓ Sign Up!

## 3.2 Login

- 3.2.1. Navigate to [http://localhost/arachnid\\_v1.0/login.php](http://localhost/arachnid_v1.0/login.php).
- 3.2.2. Enter user credentials.
- 3.2.3. Click **Sign In**.
- 3.2.4. If successful, you will be welcomed back and logged in.



## Arachnid

Welcome back robb!



Username



Password



Register




Sign In


- 3.2.5. If your username and/or password is incorrect, you will receive the following error:





## Arachnid

Invalid username and/or password.  
Please try again.

 Username

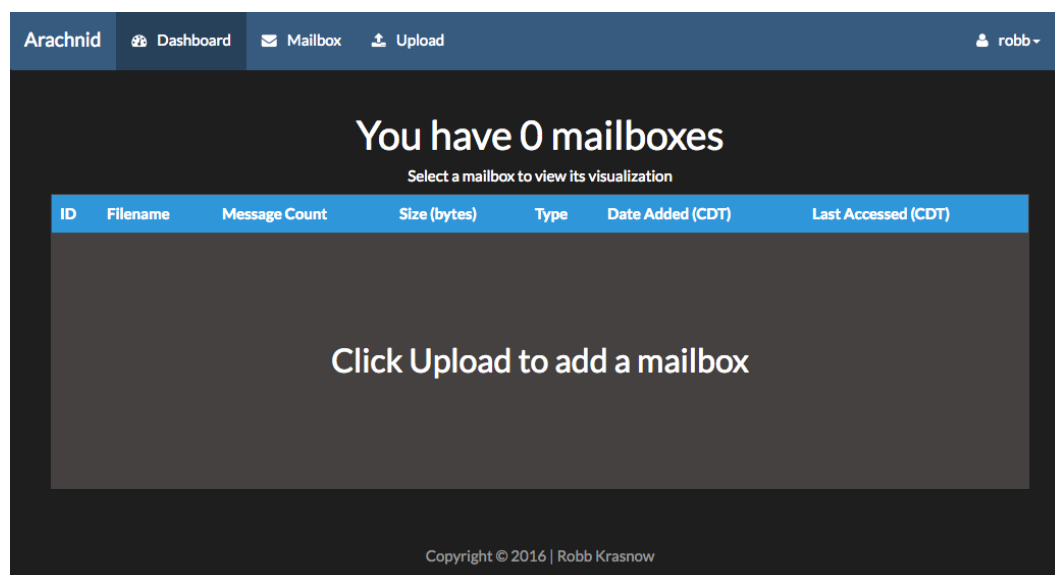
 Password

 Register

 Sign In

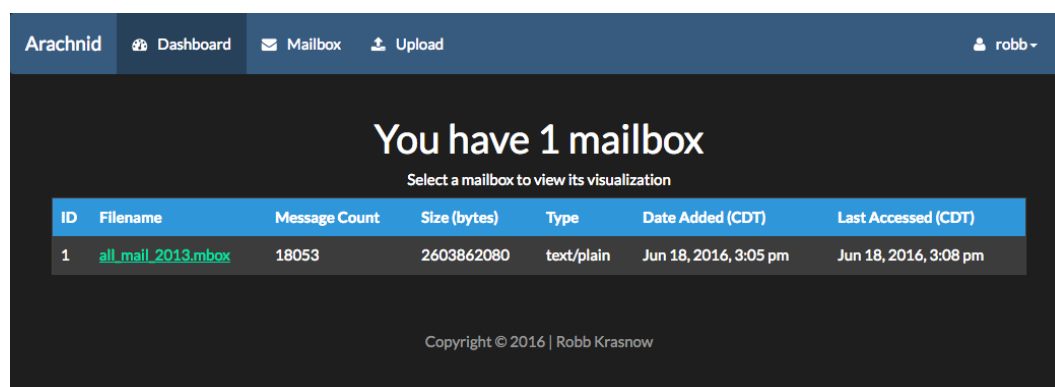
### 3.3 Dashboard

- 3.3.1. Once successfully logged in, you are presented with the dashboard. If you haven't yet uploaded a mailbox, you are shown an empty dashboard with an instruction to click **Upload** to get started.



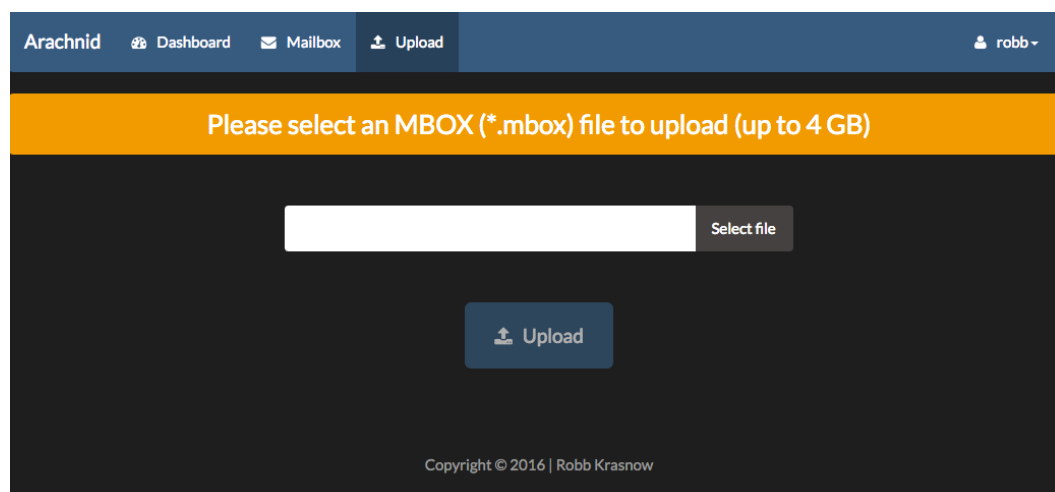
3.3.2. After successfully uploading a mailbox, it will be displayed in your dashboard.

Every filename is a hyperlink to the visualization for that mailbox.



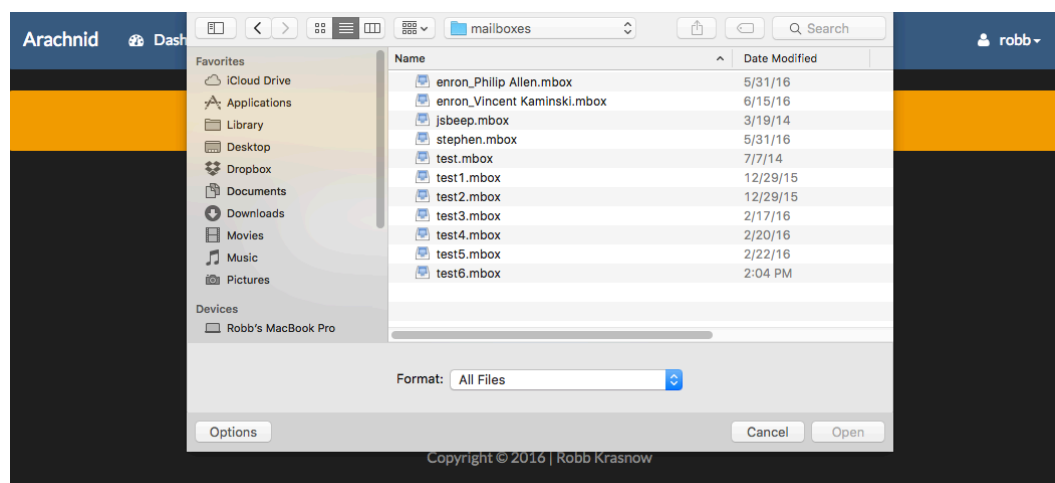
## 3.4 Upload

3.4.1. To upload a mailbox, click **Upload** in the navigation bar.



3.4.2. Click **Select file** and navigate to where you have an **.mbox** file.

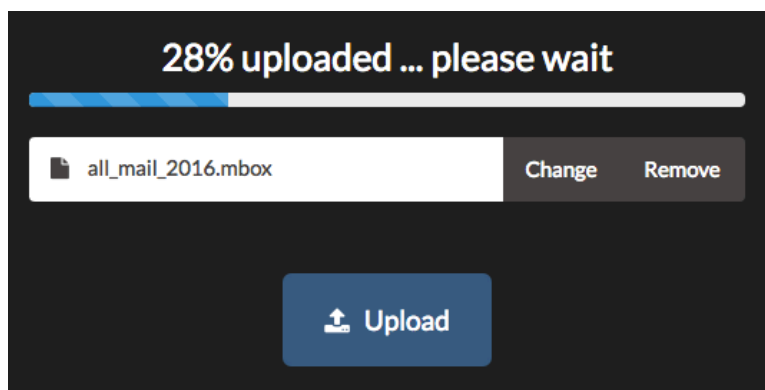
*NOTE: There is a folder of test mbox files included in arachnid\_v1.0/mailboxes/*



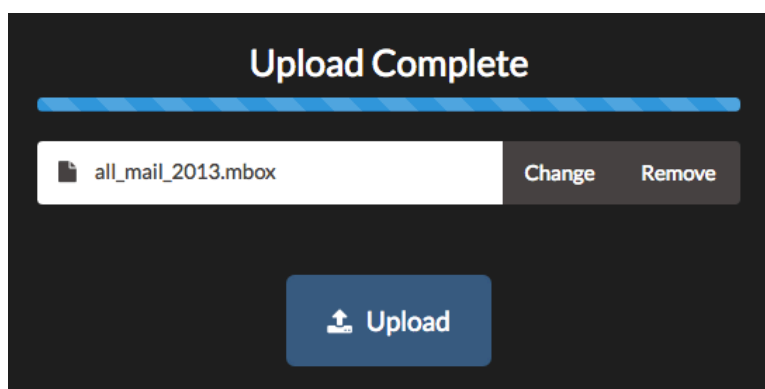
3.4.3. If you selected the wrong file, simply click **Cancel** from the file selector or

**Change** from the page and select a new one or **Remove** to clear file input.

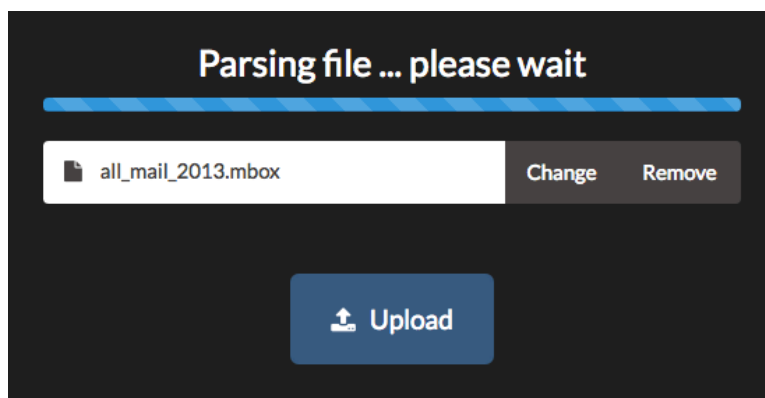
3.4.4. If the file validates, you will see a progress bar with the percentage complete.



- 3.4.5. When the file has completed uploading, the message will change to “**Upload Complete**”.

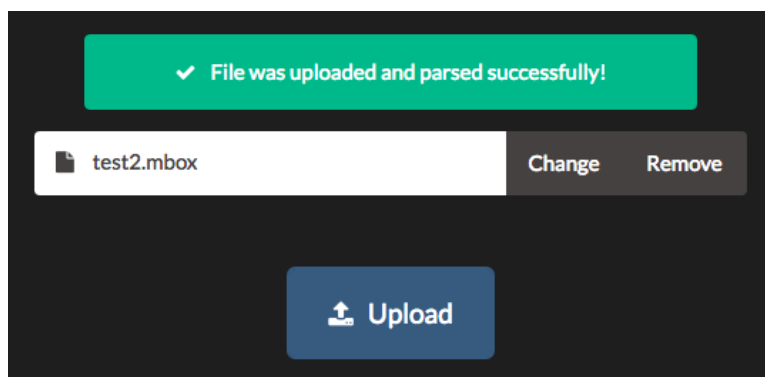


- 3.4.6. After a successful upload, the file will start to be parsed and the message will change to “**Parsing file ... please wait**”.



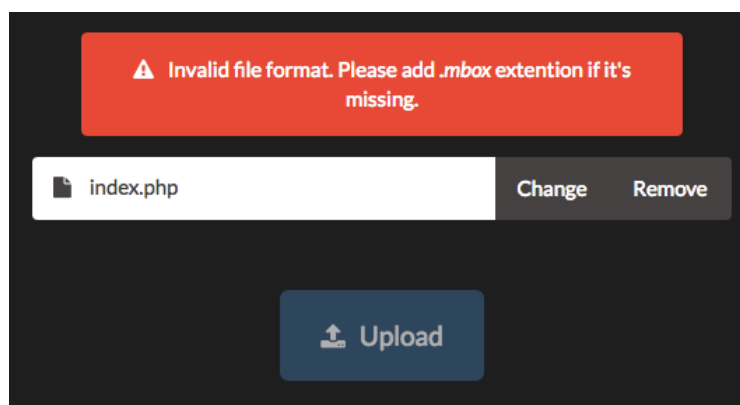
- 3.4.7. If there are no errors, the file was uploaded and parsed successfully. A success message is displayed and you will be redirected to the mailbox’s visualization.



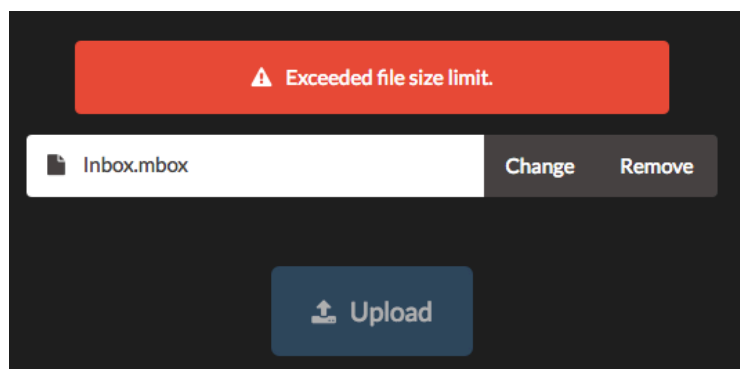


### 3.4.8. Possible Errors

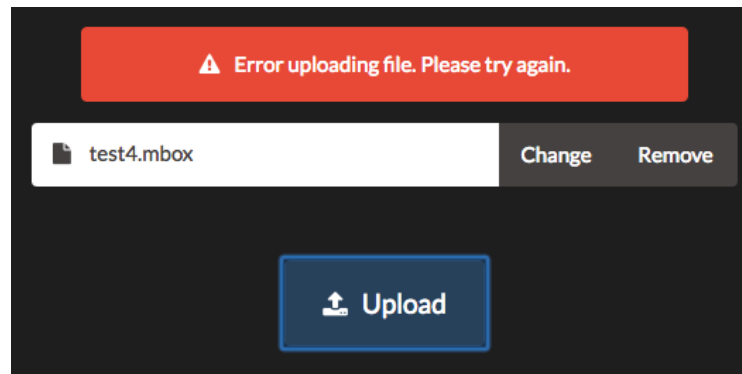
- 3.4.8.1. If you receive the following, this means the MIME type is incorrect and/or the file does not end in **.mbox**. If you are sure the file is an mbox file, simply add the **.mbox** extension to pass this error.



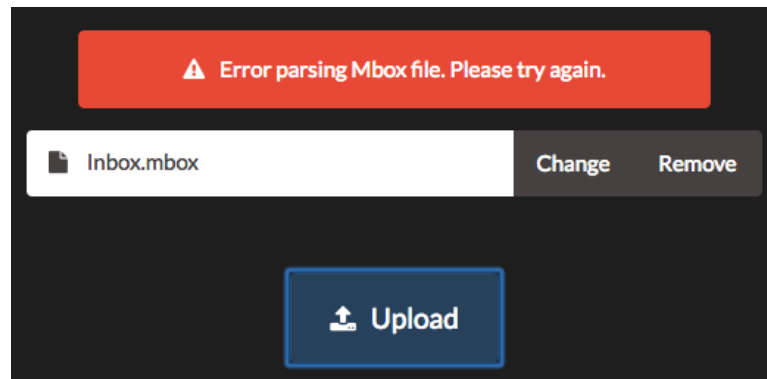
- 3.4.8.2. If you receive the following, your file is too large. Select a smaller file.



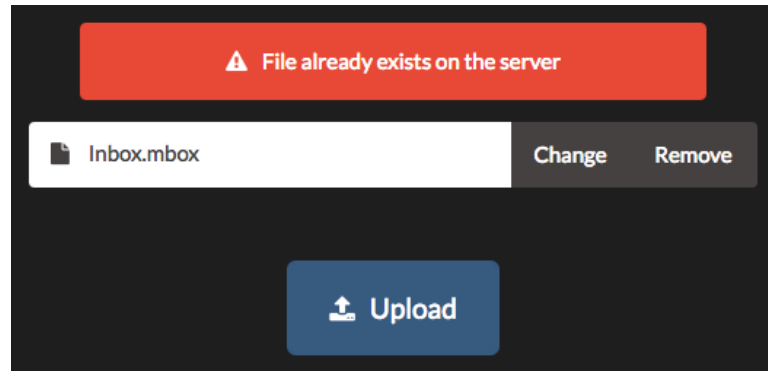
- 3.4.8.3. If you receive the following, it's most likely because of folder permissions on **arachnid\_v1.0/uploads/**. See **step 2.2.3**.



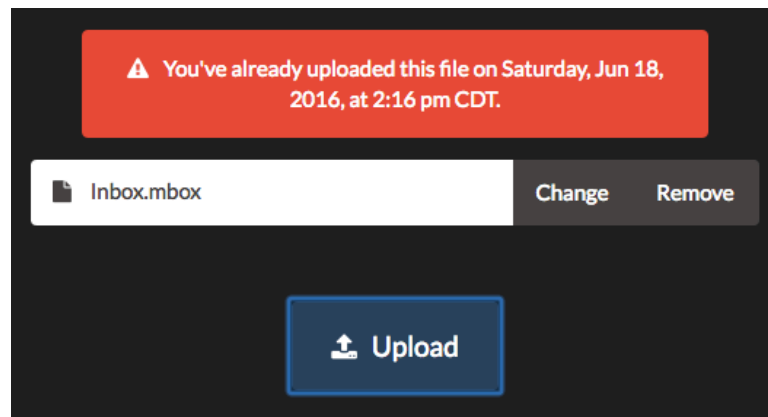
- 3.4.8.4. If there was an error parsing the file, you will be presented with:



- 3.4.8.5. Currently, because the files do not get deleted from the **arachnid\_v1.0/uploads/** directory after successful parsing, you may also see the error that the file already exists on the server. If you need to reupload this same file, remove it from **arachnid\_v1.0/uploads/**. Future work will automatically take care of this.

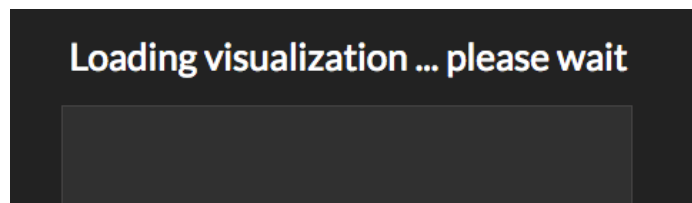


- 3.4.8.6. Should you try to upload the file that was previously uploaded and have deleted the file from **arachnid\_v1.0/uploads/**, you will be presented with an error stating you already uploaded the file. This occurs because you may only upload a unique file one time. This helps to prevent reparsing of the same data.

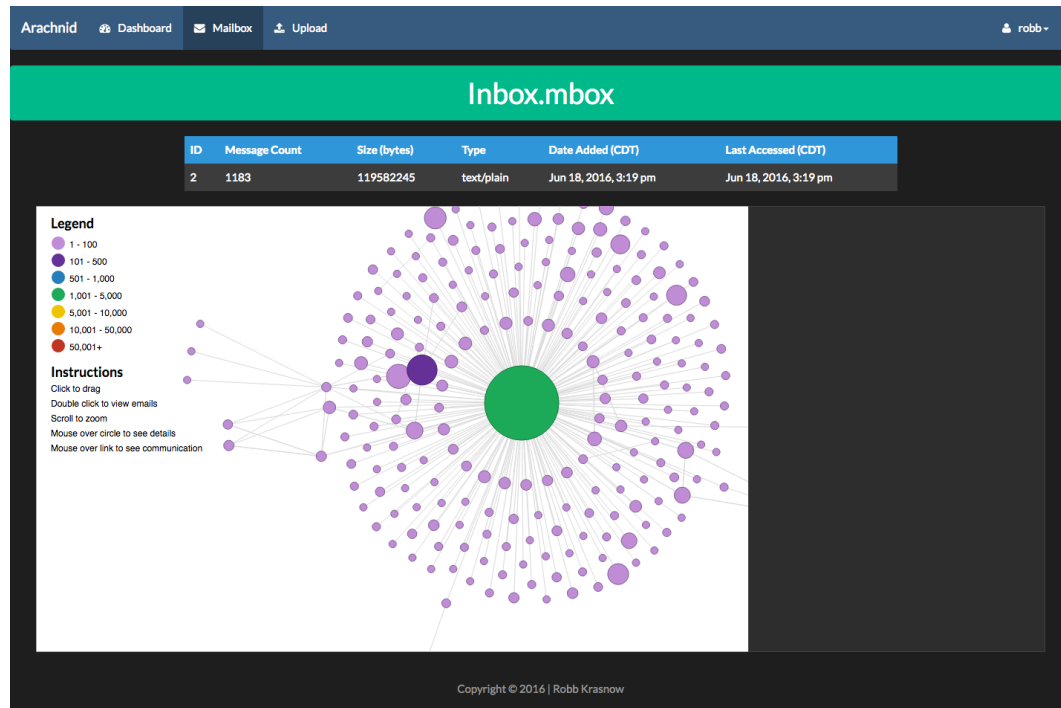


## 3.5 Mailbox


- 3.5.1. After either a successful upload or clicking a mailbox from the dashboard, your visualization will be loaded. For larger mailboxes, it may take a few seconds.



3.5.2. Once the loading has completed, the visualization will be displayed.



3.5.3. On the left side are both the legend and visualization instructions. The picture is color-coded based on email count. To interact with the graphic, follow the instructions listed and the steps to follow.

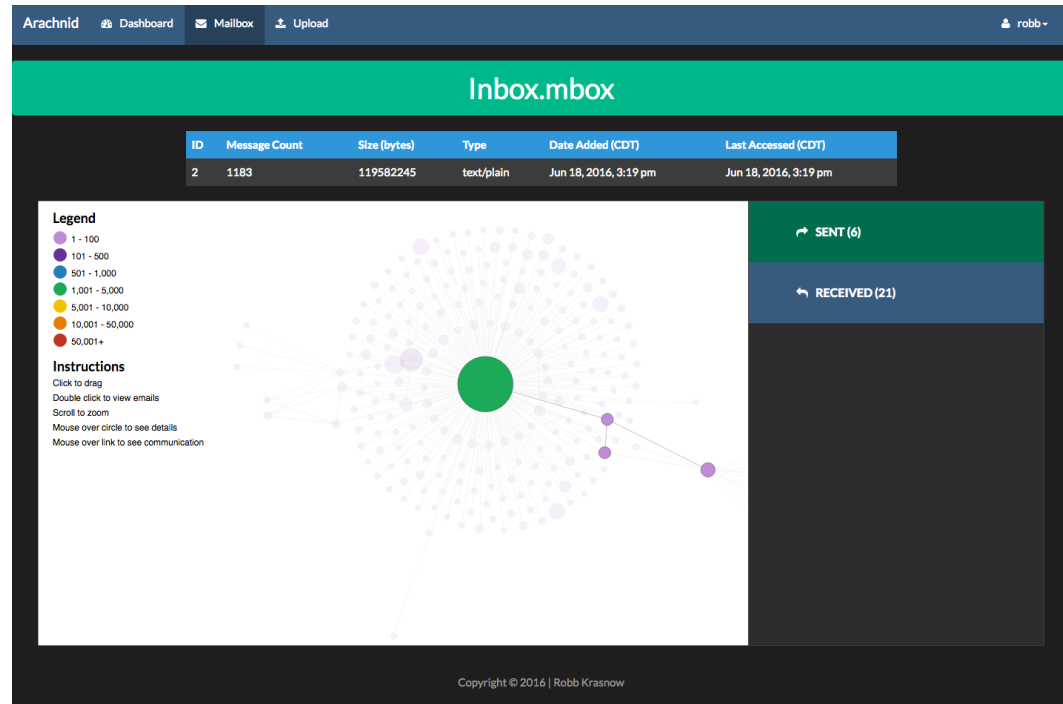
3.5.4. To pan, or move the picture around, look for the move selection icon (  ). Single click and drag to move the visualization.

3.5.5. To zoom in and out, you may use the scroll button on your mouse or the track pad. Wherever the mouse pointer is, that is where the zoom in/out will occur.

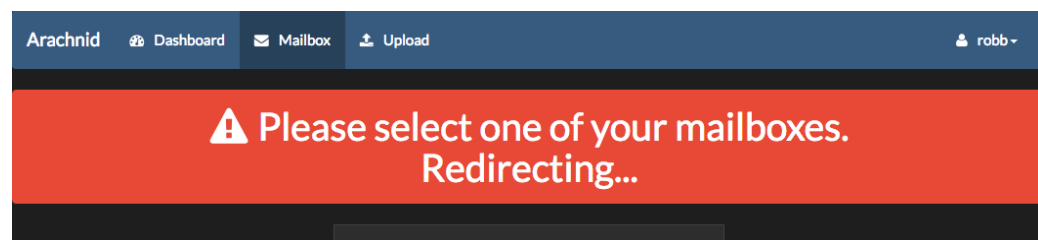
3.5.6. To view a nodes or links details, simply mouse over a node or link. For nodes, a tooltip with the node's email address and count will be displayed. For links, a tooltip with the neighboring nodes and their email count will be shown.

3.5.7. To view a node's set of emails, double-click a node. This will highlight and focus in on all the neighbors to that node and display a listing of their email

communication on the right. Both “**Sent**” and “**Received**” are clickable drop-down menus to display the email. The number next to each is the count of email for that category.

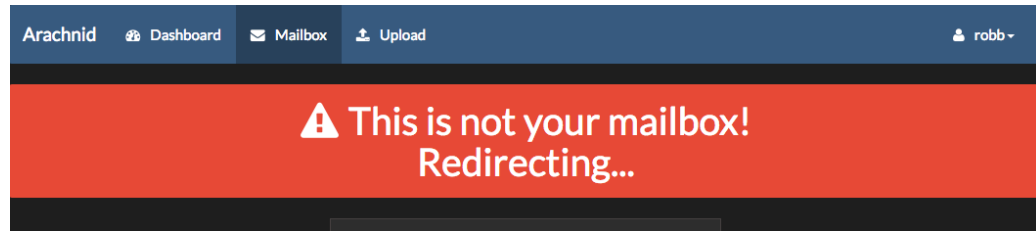


- 3.5.8. If you try to access **mailbox.php** without selecting a mailbox, you are presented with this error and redirect to your dashboard. This error will also show if you try to enter -1 for a mailbox ID.



- 3.5.9. Trying to access someone else’s mailbox? If you try this, you will be redirected to your dashboard. Nice try buddy!

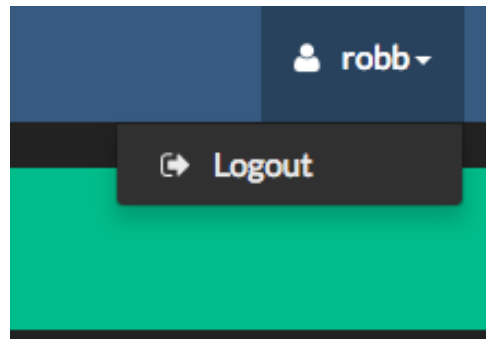
*BUG: This may also occur if something went wrong while sending the generated JSON for the visualization into the database.*



## 3.6 Logout

3.6.1. To logout from anywhere in Arachnid, click your **username** in the upper right drop-down menu.

3.6.2. Click **Logout**.



3.6.3. You are directed to the logout page, which ultimately redirects to the login page after 5 seconds, unless you click **Home**.

