

Thunderbird Extension for Spamato

Raphael Ackermann raphy@student.ethz.ch

September 20, 2005

Contents

1	Introduction	3
2	Spamato	3
2.1	Framework	3
2.2	Email Clients	3
3	Spamato4Thunderbird	3
3.1	Extension Development for Mozilla	3
3.1.1	The Mozilla Extension	3
3.1.2	The Thunderbird Extension	4
3.2	Architecture	4
3.3	LocalServer	4
3.4	Asynchronous Checking of Messages	5
4	Installation Guide	5
5	Future Work	5
5.1	GUI	6
5.2	Spam System	6
6	Results and Conclusion	6
6.1	Difficulties	6
6.2	Achievements	6
7	APPENDIX	7

1 Introduction

The aim of this Semester Thesis was the implementation of a Thunderbird Extension in order to tie the Thunderbird email client into the spamato system.

The following email clients can already make use of the spamato spam filter system. Mozilla Mailnews, Microsoft Outlook and there is also a standalone Spamato Proxy that can be used for email clients that don't have an extension system. The extension for Thunderbird is based on the Mozilla Mailnews extension as well as the Microsoft Outlook Plugin. It shares the concept of a LocalServer with the Outlook Plugin and could reuse a lot of the javascript code from the Mozilla Extension. A similar extension for the mail client of the Mozilla Suite exists see [Keno 04]. In March 2005 the Mozilla Foundation announced that they wouldn't release another release of the Mozilla Suite and only support Mozilla Thunderbird as their mail and news client.

Therefore support in Thunderbird for the Spamato system became very important.

2 Spamato

2.1 Framework

Spamato is a collaborative spam filter system that acts as a stand alone component offering interfaces for mail clients and for spam filters.

2.2 Email Clients

At the moment the following email clients are supported: Mozilla Mailnews, the mail and news client from the Mozilla Suite [1] and Microsoft Outlook. There is also a standalone proxy client which allows for the connection of arbitrary email clients to the spamato system.

3 Spamato4Thunderbird

3.1 Extension Development for Mozilla

Extensions are an easy way to extend the functionality of any of the Mozilla products Firefox, Thunderbird and the Suite. [13] for an Introduction on how to write an extension.

3.1.1 The Mozilla Extension

An extension for the Mozilla Suite [2] has been written and works well on Windows. On Linux there is problem when checking messages. The whole

email client freezes until the messages are checked, which can take up to 10 minutes and more for a lot of new messages.

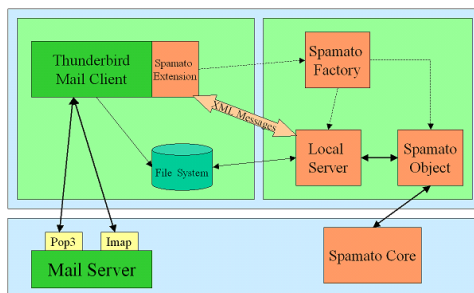
3.1.2 The Thunderbird Extension

The extension file format for Firefox and Thunderbird changed several times in the time period when I was working on this project. The most up to date description can be found here [11]. It should be noted that this extension format is still a work in progress and will most likely be unchanged again for the oncoming releases of Thunderbird 2.0 and 3.0.

I am using the following layout for my extension:

```
chrome/  
  chrome.manifest  
  install.rdf  
chrome/content/spamato/  
  custOverlay.xul  
  spam_button.xul  
  spamato.js  
chrome/skin/classic/spamato/  
  spamato.css  
  spamato_ok.png  
  spamato_no.png  
  spamato_stats.png
```

3.2 Architecture



3.3 LocalServer

The LocalServer used by the Outlook Plugin had to be extended to handle the following XML messages:

```
HELO :  
SHUTDOWN :  
REQUEST :  
REREQUEST :
```

REPORT:
REVOKE:
GETSHORTSTATS:
SET_DEFAULT_ADDRESS:
GET_CONFIG_PORT:

3.4 Asynchronous Checking of Messages

For each new message that needs to be checked an xml message is sent to the localserver. Parameters are the filename and some additional info so that the localserver can reconstruct and find the mail object on the harddrive. The corresponding messageID is transmitted as well to make it possible to track messages.

In the Mozilla extension the exchange between the mail client and the localserver happened synchronously, using a method call and a return value indicating whether the email being checked is spam or ham.

Using an asynchronous connection over a socket on localhost sending xml messages meant that a way of mapping a reply message to the corresponding email message had to be found. This is done using the messageID property that every email message has. Such all communication is done asynchronously, and when in a "spam" reply arrives, the email having that messageID is searched for and then moved to the spamato folder.

4 Installation Guide

Make sure that the environment variable JAVA_PATH is set to your base Java directory.

You'll need to have Thunderbird 1.5 or newer. Which means at the moment any of the nightly builds since around May 2005. Or get Thunderbird 1.5 Beta from [7].

Download the xpi from <http://spamato.ethz.ch/> and save it to your hard drive. Start Thunderbird. Then go to Tools→Extensions, choose Install and select the xpi. You'll have to restart Thunderbird after this. In order to use the buttons more work needs to be done. You'll need to customize your toolbar using View→Toolbars→Customize... and then drag the three symbols 'SPAM mail', 'mail OK' and '0,0,0' to your Toolbar. Now you are ready to use Spamato in Thunderbird.

5 Future Work

Work on a better integration into Thunderbird would be nice.

5.1 GUI

On the GUI side: having the buttons available not only on the main mail window but available on all additional windows. Similar to the way that you can use the Junk Button of Thunderbird on all windows.

5.2 Spam System

A future semester project is going to investigate whether it is possible to integrate the Spamato system into the Thunderbird's internal junk mail system.

Another possibility would be to add Thunderbird's internal Bayes filter as a filter into the Spamato system.

6 Results and Conclusion

6.1 Difficulties

Creating an Extension for Thunderbird was at times difficult and not always a straightforward process. This was mainly due to the fact that Extensions are a relatively new thing for Thunderbird and not yet a stable mechanism. The installation mechanism for extensions changed several times over the time I was working on the thesis.

Debugging the extension was also cumbersome as it meant deinstalling and reinstalling the extension. Which sometimes corrupted Thunderbird itself.

Finding the right function proved to be a difficult task again. There is documentation on [5] but it is taken from the source code and so more often than not there are no comments and only the bare function definitions.

6.2 Achievements

A spamato extension for Thunderbird is available and works under Linux and Windows. Thanks to Keno for help with issues to get it working on Windows.

7 APPENDIX

the syntax and structure of the XML Messages sent to the LocalServer

HELO:

```
<spamato:message>" +  
  <spamato:type>" + HELO + "</spamato:type>" +  
</spamato:message>;
```

SHUTDOWN:

```
<spamato:message>" +  
  <spamato:type>" + SHUTDOWN + "</spamato:type>" +  
</spamato:message>;
```

REQUEST:

```
<spamato:message>" +  
  <spamato:type>" + REQUEST + "</spamato:type>" +  
  <spamato:nativePath>" + arg1 + "</spamato:nativePath>" +  
  <spamato:messageOffset>" + offset + "</spamato:messageOffset>" +  
  <spamato:messageSize>" + size + "</spamato:messageSize>" +  
  <spamato:additionalHeaderLines>" + addHeader + "</spamato:additionalHeaderLines>" +  
  <spamato:receivedMillis>" + time + "</spamato:receivedMillis>" +  
  <spamato:messageId>" + msgId + "</spamato:messageId>" +  
</spamato:message>;
```

REREQUEST:

```
<spamato:message>" +  
  <spamato:type>" + REREQUEST + "</spamato:type>" +  
  <spamato:nativePath>" + arg1 + "</spamato:nativePath>" +  
  <spamato:messageOffset>" + offset + "</spamato:messageOffset>" +  
  <spamato:messageSize>" + size + "</spamato:messageSize>" +  
  <spamato:additionalHeaderLines>" + addHeader + "</spamato:additionalHeaderLines>" +  
  <spamato:receivedMillis>" + time + "</spamato:receivedMillis>" +  
  <spamato:messageId>" + msgId + "</spamato:messageId>" +  
</spamato:message>;
```

REPORT:

```
<spamato:message>" +  
  <spamato:type>" + REPORT + "</spamato:type>" +  
  <spamato:nativePath><arg1></spamato:nativePath>" +  
  <spamato:messageOffset><offset></spamato:messageOffset>" +  
  <spamato:messageSize><size></spamato:messageSize>" +  
  <spamato:additionalHeaderLines>" + addHeader + "</spamato:additionalHeaderLines>" +
```

```
    <spamato:receivedMillis><time></spamato:receivedMillis>
</spamato:message>";
```

REVOKE:

```
<spamato:message>" +
    <spamato:type>" + REVOKE + "</spamato:type>
    <spamato:nativePath>" + arg1 + "</spamato:nativePath>
    <spamato:messageOffset><offset></spamato:messageOffset>
    <spamato:messageSize><size></spamato:messageSize>
    <spamato:additionalHeaderLines><addHeader></spamato:additionalHeaderLines>
    <spamato:receivedMillis><time></spamato:receivedMillis>
</spamato:message>";
```

GETSHORTSTATS:

```
<spamato:message>" +
    <spamato:type>" + GETSHORTSTATS + "</spamato:type>" +
</spamato:message>";
```

SET_DEFAULT_ADDRESS:

```
<spamato:message>" +
    <spamato:type>" + SET_DEFAULT_ADDRESS + "</spamato:type>" +
    <spamato:address>" + arg1 + "</spamato:address>" +
</spamato:message>";
```

GET_CONFIG_PORT:

```
<spamato:message>
    <spamato:type><GET_CONFIG_PORT></spamato:type>
</spamato:message>
```

References

- [1] <http://www.mozilla.org>
- [2] Keno Albrecht: Spamatozilla: an Extension for the Mozilla Mailnews reader
- [3] Nicolas Burri: Spamoto: A collaborative spam filter system. Diploma thesis, Swiss Federal Institute of Technology Zurich, 2004
- [4] Remo Meier: Ein PlugIn-System für Spamoto. Semesterarbeit, Eidgenössische Technische Hochschule Zürich, 2005
- [5] XulPlanet

- [6] Mozilla Knowledgebase
- [7] Mozilla Foundation:
<http://www.mozilla.org/products/thunderbird/releases/1.5beta1.html>
- [8] Ben Goodger:
<http://www.bengoodger.com/software/mb/extensions/howto.html>
- [9] <http://www.mozilla.org/projects/firefox/extensions/em-changes.html>
- [10] http://wiki.mozilla.org/Firefox:1.1_Extension_Manager_Upgrades
- [11] Ben Goodger:
<http://weblogs.mozillazine.org/ben/archives/007792.html>
- [12] Ben Goodger: Changes for Extension Developers:
<http://weblogs.mozillazine.org/ben/archives/008066.html> , 2005
- [13] http://kb.mozillazine.org/Getting_started_with_extension_development