

Debian/GNU Linux Mailing

Overview of the Mailing

Károly Erdei

November 28, 2013



Agenda

- 1 Mailing
- 2 Protocols
- 3 SPAM
- 4 Antispam
- 5 Thunderbird
- 6 TB-Preferences
- 7 Folders
- 8 Search

Agenda

- 1 Mailing
- 2 Protocols
- 3 SPAM
- 4 Antispam
- 5 Thunderbird
- 6 TB-Preferences
- 7 Folders
- 8 Search

Mailing

Sending e-mails across the Internet

Basics, Terminology

- Message transfer between special hosts (Mail gateways)
 - Mail gateway: dedicated computers to process and transfer e-mails
 - MTA - Mail Transfer Agent: sendmail, exim, postfix..
 - Protocol: SMTP - Simple Mail Transfer Protocol (RFC 821, 1982)
- Message retrieval by mail user agent (MUA)
 - MUAs: Thunderbird, xmail, pine, etc.
 - POP3: Post Office Protocol, version 3
 - IMAP: Internet Message Access Protocol, version 4
- Representation of messages
 - RFC 822: Basic Message Format (7-bit text only)
 - MIME: Multipurpose Internet Mail Extension (1992)
 - S/MIME: Secure MIME; PGP/MIME: Pretty Good Privacy

Structure and meaning of the e-mail address

E-Mail address: `name@domain`

- **name:** real name, symbolic name, alias, mailbox name
 - example: john.shaw, secretary, research, johnny
 - mailbox: the place where the messages on the receiving mail gateway will be stored in formats **mbox** or **maildir**
 - mbox format: the messages will be stored in one file; new message will be appended; delimiter: empty line; begins with: ^ From
 - maildir: each message will be stored as a separate file in the directory
 - alias: an alternative name which translates to the name of the mailbox
- **domain:** DNS domain name (risc.jku.at, jku.at)
 - defines MX resource record which host deliver the messages to
 - there can be more mail exchangers (mail gateways) for the domain

```
;; QUESTION SECTION:
;risc.uni-linz.ac.at.          IN      MX

;; ANSWER SECTION:
risc.uni-linz.ac.at.  1363  IN  MX  20  bullfinch.risc.uni-linz.ac.at.
risc.uni-linz.ac.at.  1363  IN  MX  30  grauwal.risc.uni-linz.ac.at.
```

e-Mail Transfer Process

Message transfer process in overview

User sends a message

- to the local (e.g. RISC) mail gateway by the MUA (e.g. Thunderbird)
- Local mail gateway
 - first spools message locally in the spool area `/var/spool/mqueue`
 - after transfers message from the spool area to the recipients (remote) mail gateway

Local mail gateway receives a message for a user

- from the mail gateway of remote senders
- Received message is placed into the **mailbox** of the user on the local mail gateway

User downloads the message (e.g. by Firefox, POP) from

- the local mail gateway to laptop or PC's home directory

Agenda

- 1 Mailing
- 2 Protocols
- 3 SPAM
- 4 Antispam
- 5 Thunderbird
- 6 TB-Preferences
- 7 Folders
- 8 Search

Mailing, Internet Standards (STDs)

SMTP - Transfer Protocol

- STD 10 / RFC 821: Simple Mail Transfer Protocol

- Specifies how messages are passed from one host to another

```
R: 220 uhu.risc.uni-linz.ac.at ESMTP Sendmail 8.13.8
S: HELO sender hostname                      R: 250 OK
S: MAIL FROM: <e-mail address>              R: 250 OK
S: RCPT TO:  <e-mail address>                R: 250 OK
S: DATA
R: 354 Start mail input; end with <CRLF>.<CRLF>
S: <CRLF>.<CRLF>                             R: 250 OK
S: quit                                       R: 221 name closing
```

- other commands: VRFY Smith; EXTN secretary
- Mail server/clients understand extended version (ESMTP)
 - ESMTP is requested by client via EHLO instead of HELO
 - ENHANCEDSTATUSCODES, 8BITMIME, AUTH DIGEST-MD5
CRAM-MD5 PLAIN, STARTTLS

Mailing, Internet Standards (STDs)

Message Format for english text

- STD 11 / RFC 822: Basic Message Format

- 7-bit ASCII format, primarily for english text
 - only plain text, binary must be converted
- Mail header and Mail body is separated by an empty line
 - Mail header begins with a **From** line in mbox format
- Mail header - User Fields - provided by MUA
 - From: To: Cc: Subject: Sender: Bcc:
 - Bcc: not visible in header
 - All of them can be set by most of the MUA: used by spammers, they fake the header lines
- Mail header - Automatic Fields - provided by MUA,MTA
 - Date: Message-Id: **Return-path:** **Received:**, X-fields
 - Received: can follow the mail gateways as e-mails pass them

MIME: Multipurpose Internet Mail Extension

How to send other contents as ASCII text

- RFC 1341: Messages in other character sets and with binary contents

- Use RFC 822 basic message format
 - MIME messages can be transferred by normal (older) SMTP agents
 - Only mail reader/writer (MUA) must be MIME enabled
- Define additional header fields:
 - MIME-Version: , Content-Id:
 - Content-Transfer-Encoding: How content is encoded as ASCII
 - Content-Type: MIME-type of content
 - Content-Description: Human-readable description of content
- Content-Transfer-Encoding:
 - 7-bit, Quoted-Printable, Base64 (for binary data); 8-bit; Binary
- Content-Type: 7 MIME types with multiple subtypes
 - Text, Image, Audio, Video, Application, Message, Multipart,
- Content Subtypes: text/plain, text/richtext, message/rfc822
 - application/octet-stream, application/PostScript multipart/mixed, multipart/alternative

e-Mail Security

Use cryptographic methods !

Email is not a secure communication medium

- **Reliability:** messages may be lost
 - Only transfer from mail queue to next mail server is guaranteed
 - User may be asked to confirm receipt of a message
 - Header field `Disposition-Notification-To:` *address*
- **Privacy:** messages may be read by unauthorized persons
 - Messages are transferred in clear text
- **Authenticity:** message sender may be faked
 - It is easy to create messages with faked `From:` fields
- **Integrity:** message content may be changed
 - Intermediate transfer agent may modify message
- Integrity, Authenticity, Privacy achieved by cryptographic methods
 - Privacy: by Encryption
 - Integrity, Authenticity: by Digital signatures

Emails are as secure as postcards are without cryptographic methods

POP - Post Office Protocol

POP - available and supported by ISP

- Many e-mail clients support POP and IMAP to retrieve messages
- supports simple download-and-delete requirements for access to remote mailboxes
- POP3s uses SSL by the port 995
- handles also MIME emails
- simple message identifying mechanism

IMAP - Internet Mail Access Protocol

IMAP - should be preferred against POP

- current version IMAP4
- client can stay connected
- users with many or large messages get faster response times
- Multiple clients simultaneously connected to the same mailbox
- Access to MIME message parts and partial fetch
- Message state information (are stored on the server)
- Multiple mailboxes on the server
- Server-side search (client to ask the server to search messages; no prior download)
- complex IMAP server implementation problem
- IMAPs uses SSL over the port 993

Agenda

1 Mailing

2 Protocols

3 SPAM

4 Antispam

5 Thunderbird

6 TB-Preferences

7 Folders

8 Search

SPAM living with it

spam is dangerous

What is SPAM

- nearly identical messages sent to numerous recipients by e-mail
- any email message where the senders identity is forged

Problems with SPAM

- contains an attachment which is a **virus/trojan**
 - to become your Windows PC a **bot net** host
- **phishing**: spam ask users to enter personal information on fake Web sites using e-mail forged to look like it is from a bank or other organization such as PayPal
- **spoofing**: your e-mail address used as sender of spam
 - you get all bounced mails (500-5000 in short time)
- spam contains links to advertised/malicious web sites

SPAM living with it

How spammers work

- collecting e-mail addresses
 - from chatrooms, websites, newsgroups
 - infecting Windows PCs, where viruses collect address books
- sending spam mails
 - using open mail gateways (not anymore)
 - using **bot nets**, by infecting Windows PCs with viruses, Trojans
- dictionary attacks
 - spammer sends e-mail based on dictionary
 - 150.000 rejected by blacklists + 40.000 dictionary attack

Main problem to fight SPAM

- governments did not accept appropriate law against spammers, SPAM

Agenda

- 1 Mailing
- 2 Protocols
- 3 SPAM
- 4 Antispam
- 5 Thunderbird
- 6 TB-Preferences
- 7 Folders
- 8 Search

Antispam techniques I

What the end user can and should do

Give your e-mail address only to trusted persons/sites

- never put your e-mail address in text form to a web site
- post to lists as anonym, use faked, invalid email address and name
- avoid responding to spam
 - dont use links: remove me from the list (you'll confirm your e-mail address)
 - be carefull with your **vacation** message: you can send a reply to a spammer
- don't use contact forms on web sites: (problems with server side scripting)
- don't register anywhere with real e-mail address (I hope, amazon.de is ok, but other sites ?)
- use temporary e-mail addresses (if possible)
 - the e-mail address (alias) expires after a given time

Do **NOT** read and send HTML emails

Antispam techniques II

Be careful using and configuring your mail program

- don't use html in e-mail programs (MUA) !
 - set the outgoing mail format to **PLAIN TEXT**
 - for an e-mail message it is not necessary to use html
 - you can use any type of attachment (to send .doc, .jpg, etc. files)
- RISKS by reading HTML formatted e-mails
 - mail client starts a browser or the function of browser is integrated
 - html browser interpret the contents automatically (check settings)
 - they start scripts, download, show images, without asking you
 - html spam can contain **scripts**, which allow spammer to spy your computer (address, etc) **spyware** will or may be installed
 - html spam can contain web **bugs**, which allow spammer to get further information from you, save viruses, Trojans, you became a **bot net** host, etc.
- mail clients which don't display html, attachments, images have fewer risk !

Antispam techniques

Using SpamAssassin (SA)

SA - email spam filtering based on content-matching rules

- uses a variety of spam-detection techniques
 - DNS-based and checksum-based spam detection
 - Bayesian filtering, blacklists and online databases
- can be integrated with the mail server
- uses large set of rules to decide e-mail is spam or ham

How to tune the default configuration

- all e-mails at RISC will be checked by SA
- you can use **procmail** to sort your e-mails in folders
 - to learn: `man procmail`; `man .procmailrc`;
 - RISC User Guides: How to configure SpamAssassin for your needs
- configuration file: **.spamassassin/user_prefs**
- use **sa-learn** to tune the Bayesian algorithm
`sa-learn --spam --mbox /path/to/spaminput`

Agenda

- 1 Mailing
- 2 Protocols
- 3 SPAM
- 4 Antispam
- 5 Thunderbird**
- 6 TB-Preferences
- 7 Folders
- 8 Search

Mozilla Thunderbird

current version 24.1

Thunderbird is the best free MUA

- free, open source, cross-platform e-mail and news client
- supports multiple e-mail, newsgroup and RSS accounts
 - supports multiple identities within accounts
- Spam mail filtering
 - own Bayesian spam filter
 - whitelist, based on the included address book
 - understands the classifications of SpamAssassin
- Standards supported natively
 - POP and IMAP with SSL/TLS,
 - S/MIME secure email (digital signing and message encryption using certificates)
 - PGP signing, encryption, and decryption by the **Enigmail** extension
- Security protection includes
 - disabling loading of remote images within messages
 - disabling JavaScript
- Additional features are available via extensions

Mozilla Thunderbird

Useful account settings

Suggested account settings

- use IMAP with ssl (port) 993
- instead of saving an email in Sent folder you can Cc: it yourself
- never compose a message in HTML format, it is not necessary.
 - do not force others to try to read HTML messages - it is very bad for security !
- you can keep all your emails locally on a computer
 - see the next slide ! Important !
- trust mail headers set by Spamassassin
- keep email locally on your computer - you can specify this on folders level
- enable OpenPGP (Enigmail) support
 - your default should be always: using OpenPGP/Enigmail
- never asks for Return Receipt and never send a Return Receipt
- ALWAYS use for SMTP server User Authentication

Mozilla Thunderbird

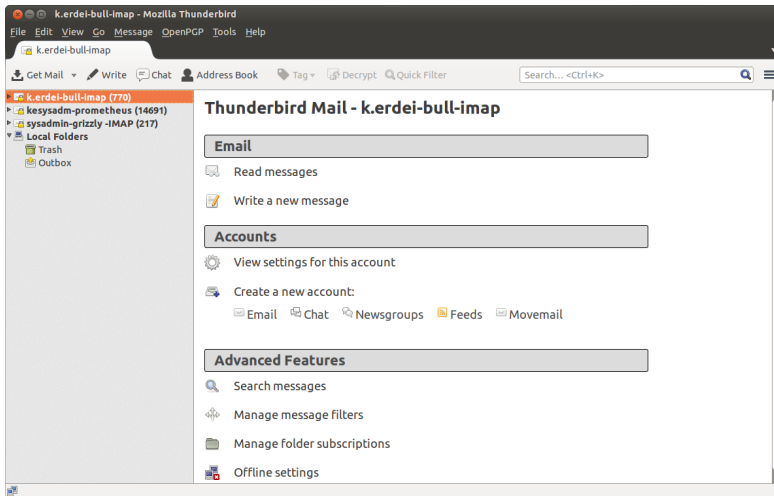
Do not synchronize using a RISC Computer !!!

Suggested account settings

- you can keep all your emails locally on a computer
 - you can specify this on folders level
- NEVER keep email locally on a RISC computer
 - you'll fill the partition with your home directory in some minutes !!!!
 - nobody else can work after with home on this partition
- ONLY on your laptop is allowed to keep your emails locally !!!

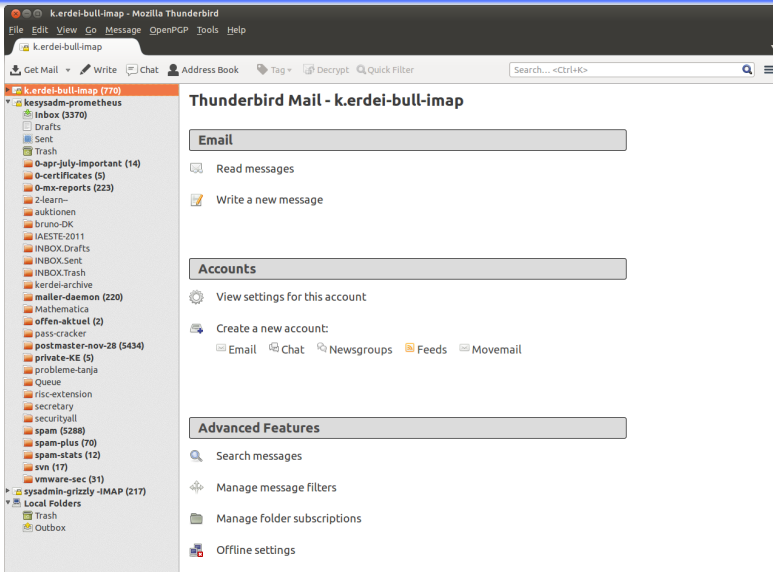
NEVER keep email locally on a RISC computer

Main Window of Thunderbird

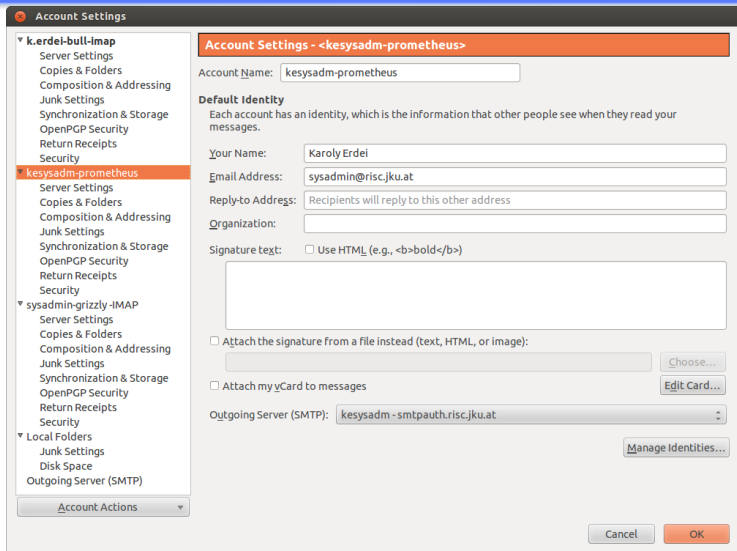


The kesysadm account

Folder list

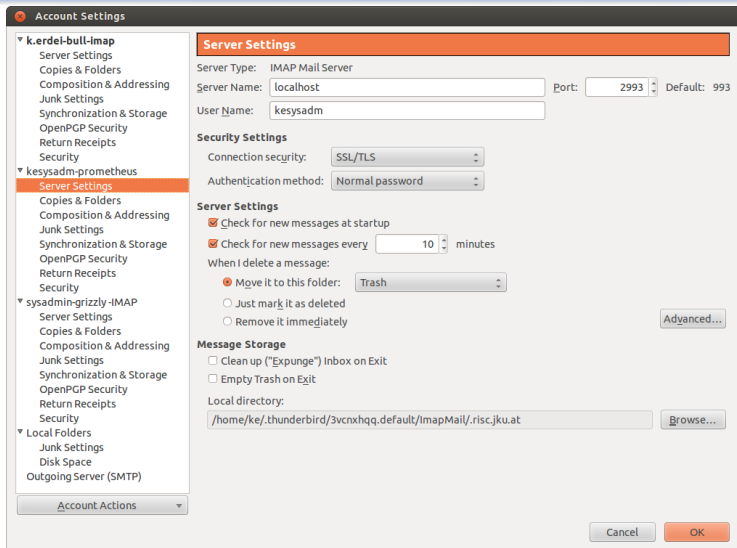


Settings for the kesysadm email account



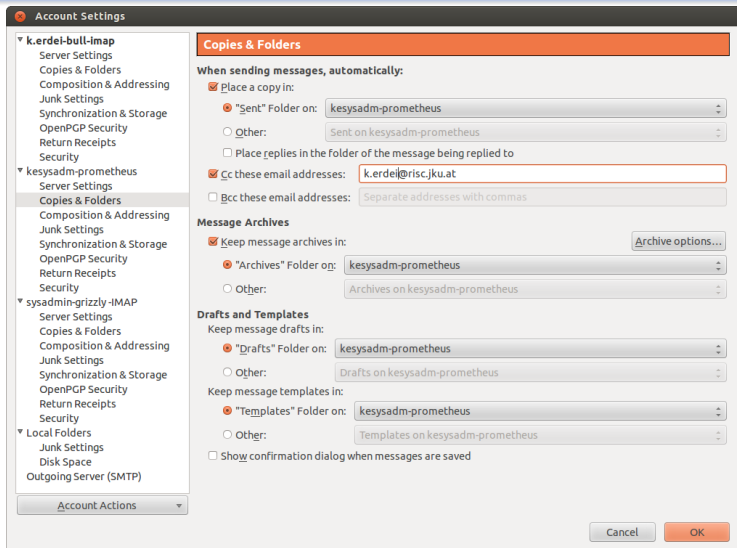
Setting for the incoming mail server

IMAP server settings



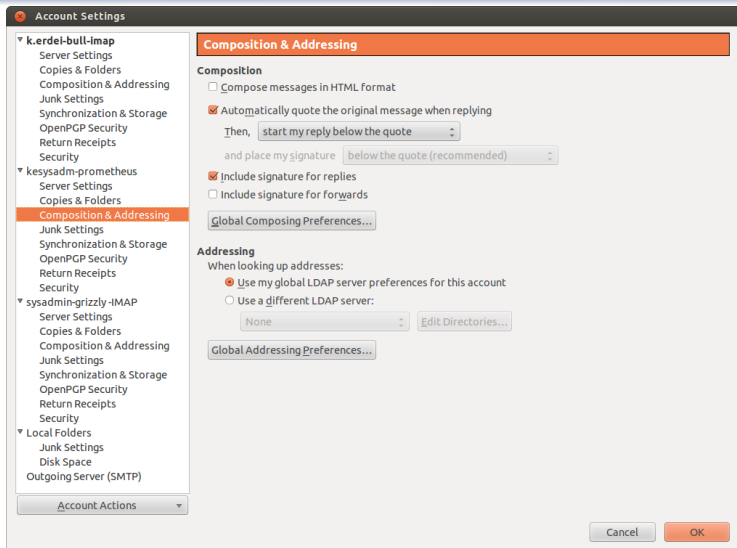
Setting for Copies and Folders

IMAP server settings



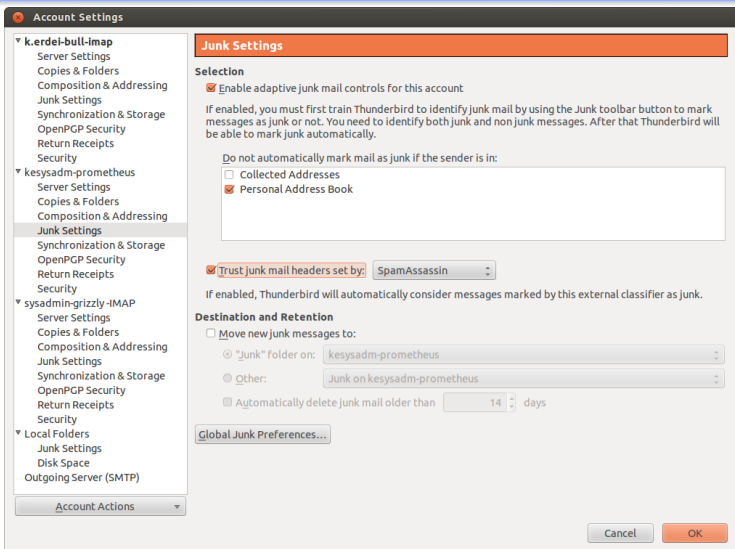
Setting for Composition and Addressing

Do not compose message in HTML format



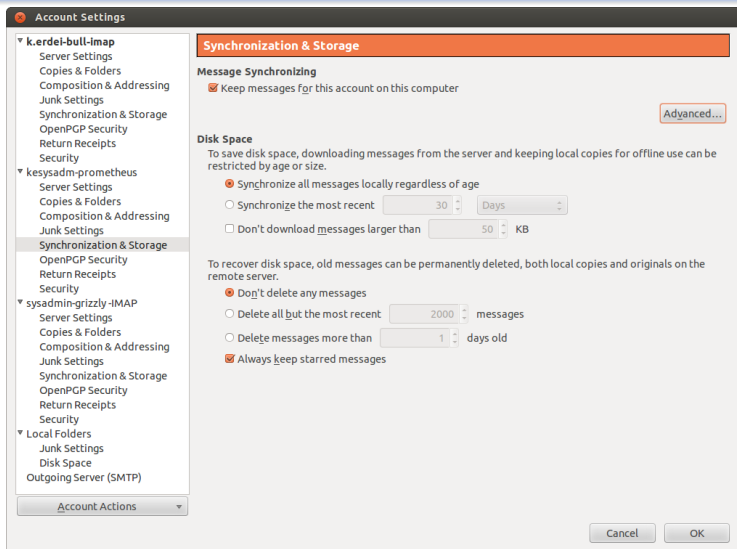
Junks settings

Trust headers set by Spamassassin



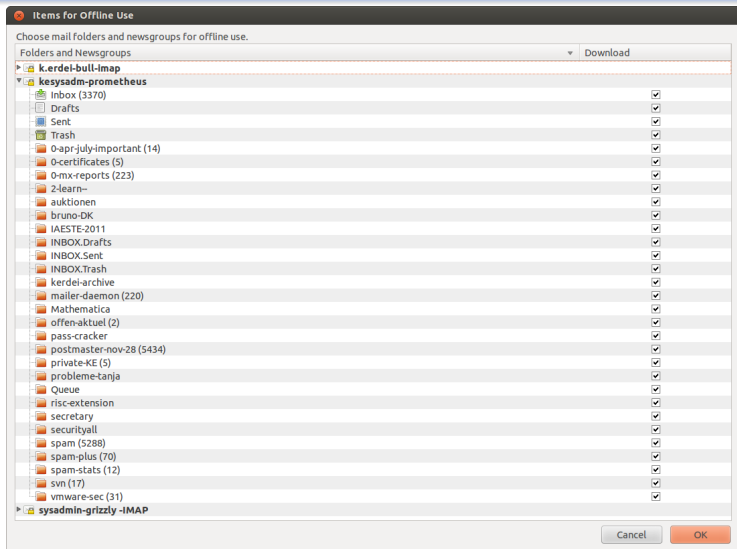
Synchronisation and storage

Keep messages local on your laptop/PC



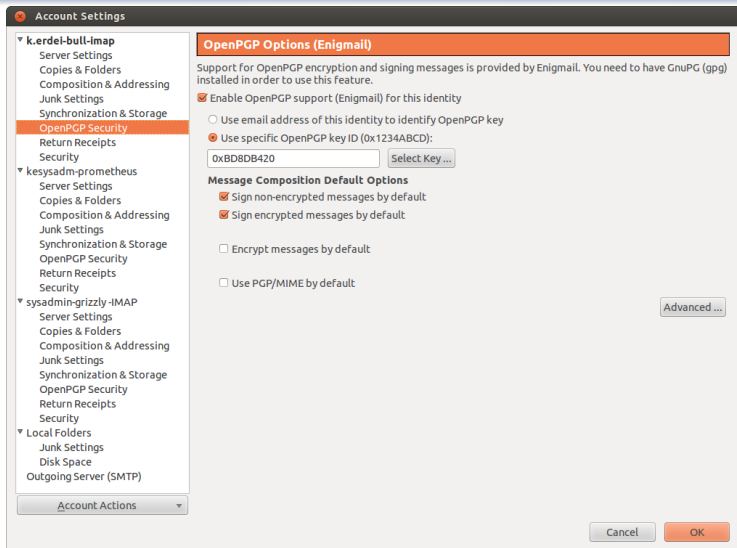
Synchronisation and storage

You can define for each folder the setting

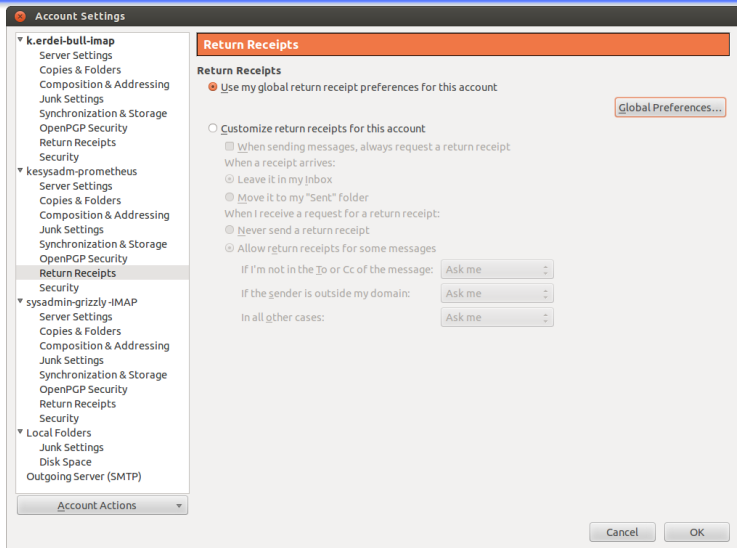


OpenPGP Options (Enigmail)

Enable OpenPGP optsns

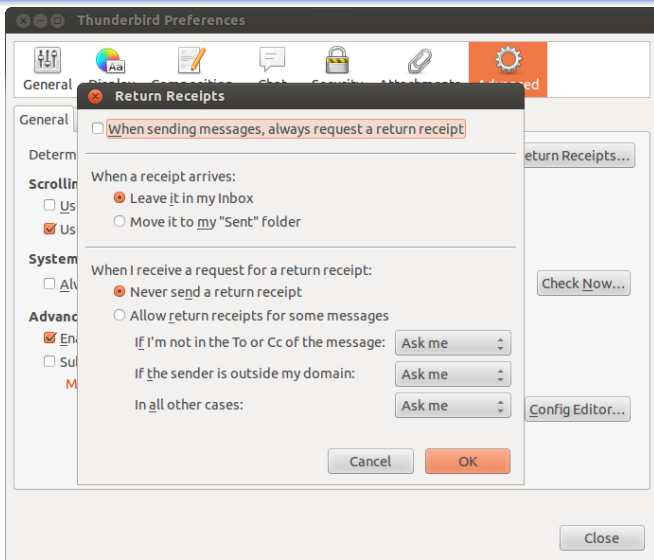


Return Receipts



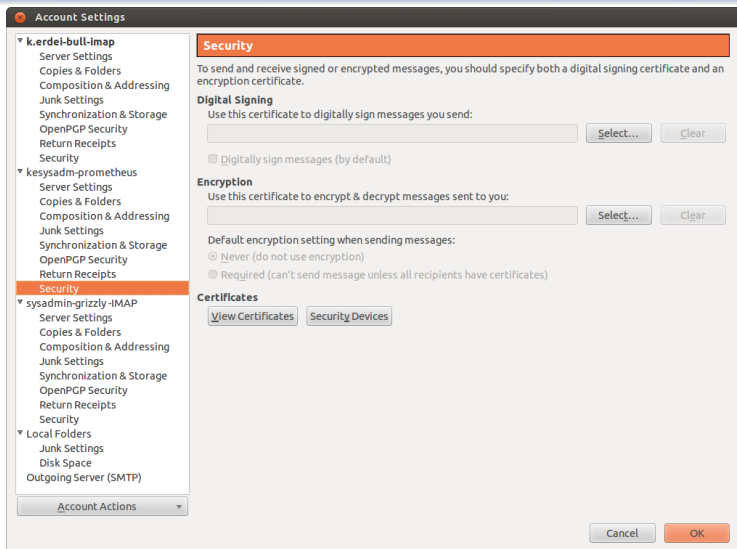
Return Receipts

Do not request a return receipt AND do not send a return receipt !



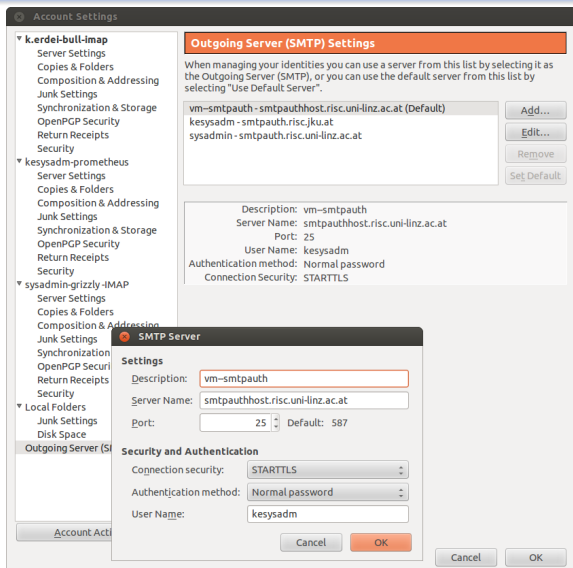
Security

You Do not need this ! You use the OpenPGP (Enigmail) for security !!



Setting the smtp out host

Always use for sending a secure connection: SMTP AUTH or SSL/TLS.



Agenda

- 1 Mailing
- 2 Protocols
- 3 SPAM
- 4 Antispam
- 5 Thunderbird
- 6 TB-Preferences**
- 7 Folders
- 8 Search

Mozilla Thunderbird

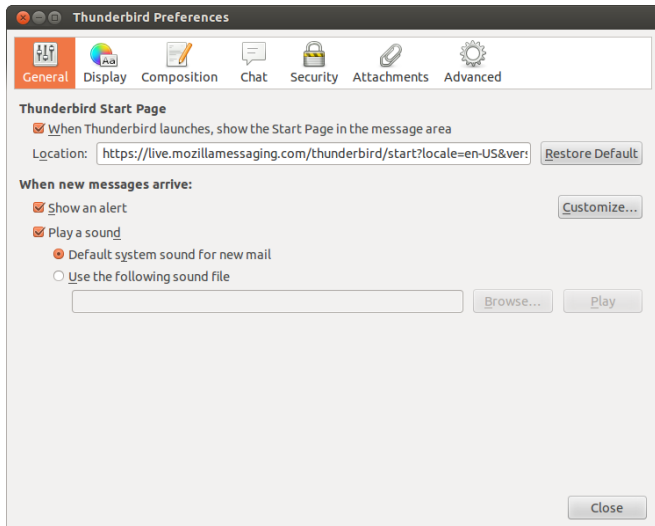
Useful Preference settings

Suggested Preference settings for more privacy

- never save your password in Thunderbird
 - your GnuPG solution is more secure (e.g. GPG Editor)
- never accept cookies from sites
- do not check automatically for updates
- Incoming Attachments: delete all entries with actions there
- Use the Config Editor for fine tuning (Advanced/General)
 - but be careful what you do there

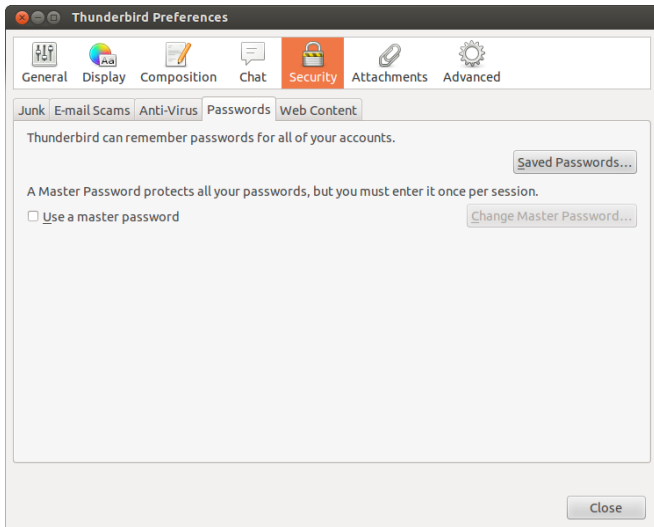
Thunderbird Preferences - General

Menu bar - Edit - Preferences



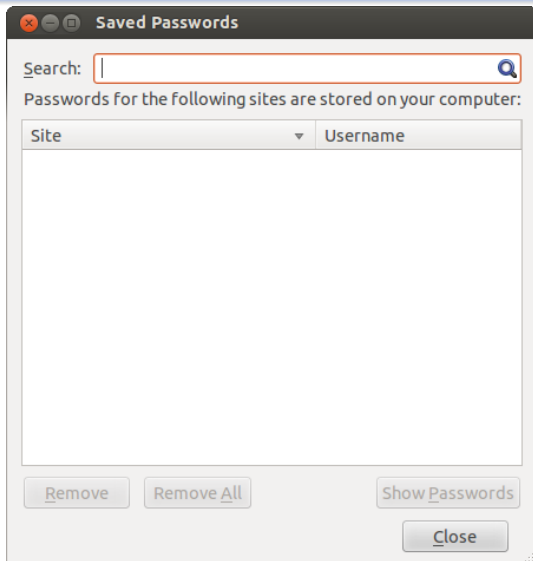
Thunderbird Preferences - Security - Passwords

Never save your passwords in Thunderbird



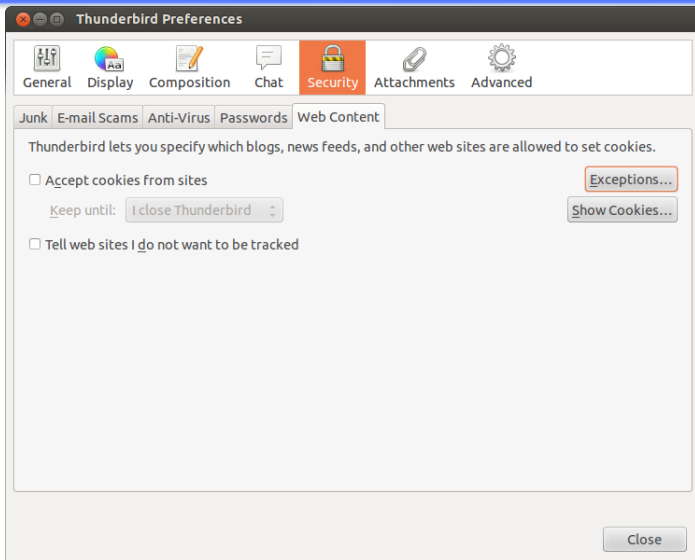
Thunderbird Preferences - Security - Passwords

This is the correct setting - no saved password



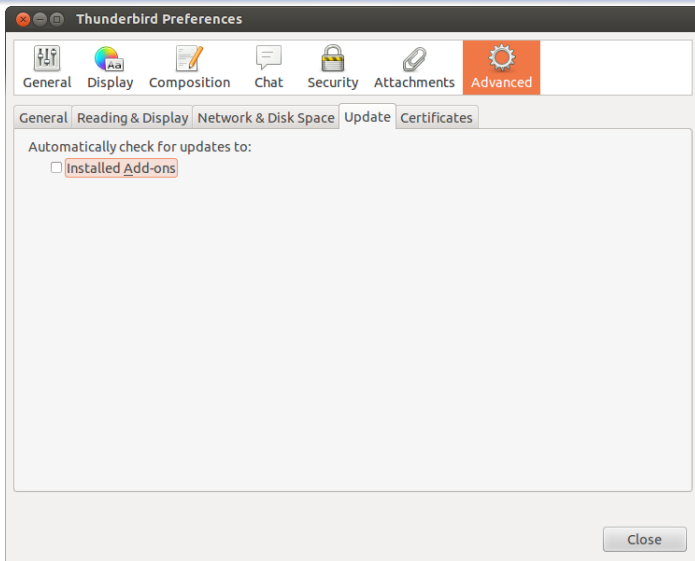
Thunderbird Preferences - Security - Web content

Never allow cookies !



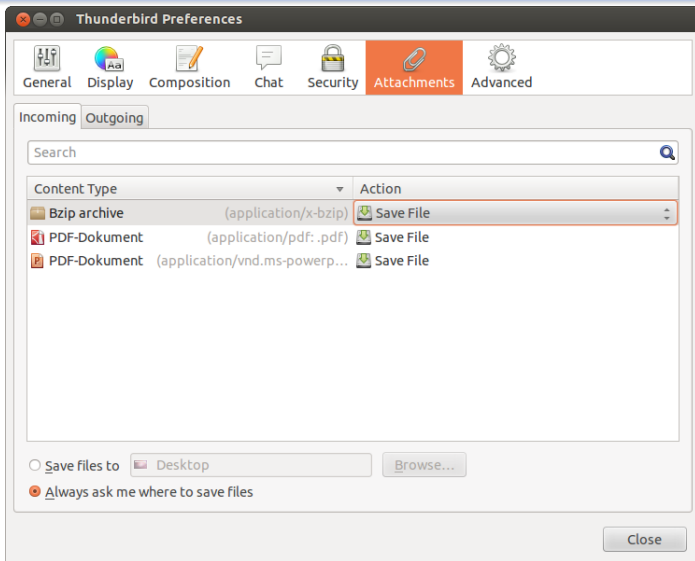
Thunderbird Preferences - Update

Do this manually from time to time



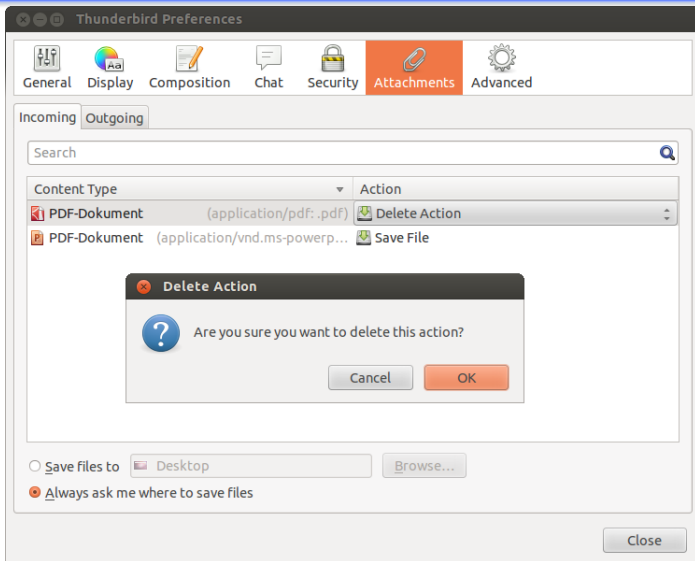
Thunderbird Preferences - Attachments - Incoming

At least use: save file option



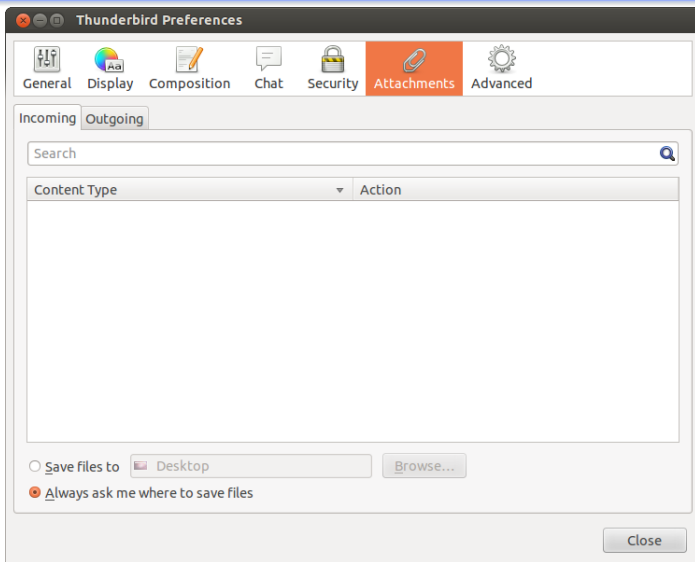
Thunderbird Preferences - Attachment - Incoming

Best is not to have here an action, delete them



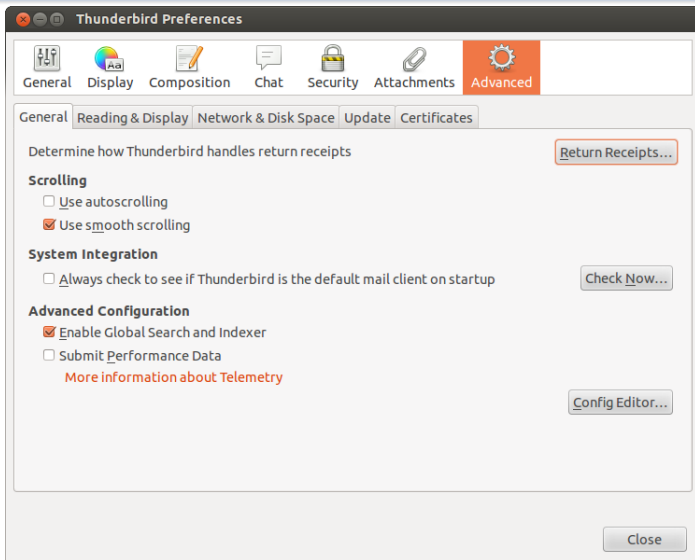
Thunderbird Preferences - Attachment - Incoming

This is the right solution



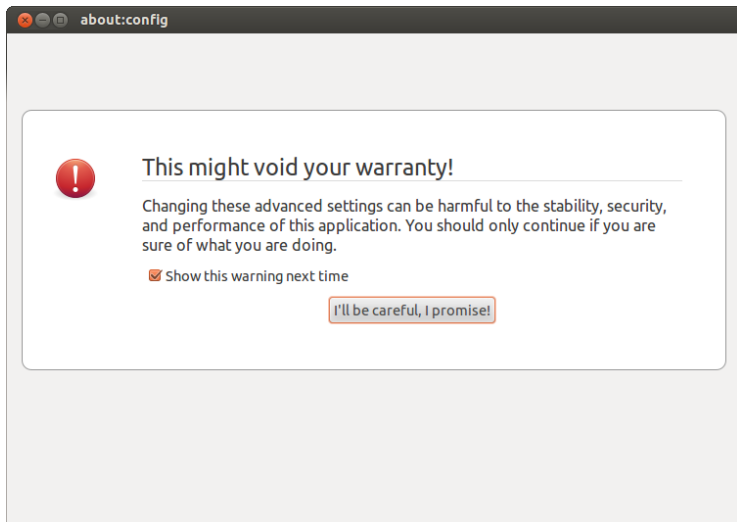
Thunderbird Preferences - Advanced

The Config Editor is the most powerfull unit (also dangerous)



Thunderbird Preferences - Advanced - Config Editor

General view



Thunderbird Preferences - Advanced - Config Editor

Javascript options

about:config

Search:

Preference Name	Status	Type	Value
Feeds.logging.console	default	string	Info
accessibility.accesskeycausesactivation	default	boolean	true
accessibility.browsewithcaret	default	boolean	false
accessibility.browsewithcaret_shortcut.enabled	default	boolean	true
accessibility.force_disabled	default	integer	0
accessibility.mouse_focuses_formcontrol	default	boolean	false
accessibility.tabfocus	default	integer	7
accessibility.tabfocus_applies_to_xul	default	boolean	false
accessibility.typeaheadfind	default	boolean	false
accessibility.typeaheadfind.autostart	default	boolean	true
accessibility.typeaheadfind.casesensitive	default	integer	0
accessibility.typeaheadfind.enableSound	default	boolean	true
accessibility.typeaheadfind.enabletimeout	default	boolean	true
accessibility.typeaheadfind.flashBar	user set	integer	0
accessibility.typeaheadfind.linksOnly	default	boolean	false
accessibility.typeaheadfind.preFillWithSelection	default	boolean	true
accessibility.typeaheadfind.soundURL	default	string	beep
accessibility.typeaheadfind.startlinksOnly	default	boolean	false
accessibility.typeaheadfind.timeout	default	integer	5000
accessibility.useBrailledisplay	default	string	
accessibility.useTextToSpeech	default	string	
accessibility.warn_on_browsewithcaret	default	boolean	true
advanced.mailftp	default	boolean	false
alerts.disableSlidingEffect	default	boolean	false
alerts.slideIncrementTime	default	integer	50
alerts.totalOpenTime	default	integer	10000
app.releaseNotesURL	default	string	http://live.mozillamessaging.com/%...
app.support.baseURL	default	string	http://support.live.mozillamessaging...
app.update.auto	default	boolean	true
app.update.cert.checkAttributes	default	boolean	true

Thunderbird Preferences - Advanced - Config Editor

Network Protocol handler

With this setting you get a warning, if you click a hyperlink.

The screenshot shows the 'about:config' window with the search filter 'network.protocol-handler.'. The following table represents the data visible in the preference list:

Preference Name	Status	Type	Value
network.protocol-handler.expose.news	default	boolean	true
network.protocol-handler.expose.nntp	default	boolean	true
network.protocol-handler.expose.pop	default	boolean	true
network.protocol-handler.expose.snews	default	boolean	true
network.protocol-handler.external-default	default	boolean	true
network.protocol-handler.external.afp	default	boolean	false
network.protocol-handler.external.data	default	boolean	false
network.protocol-handler.external.disk	default	boolean	false
network.protocol-handler.external.disks	default	boolean	false
network.protocol-handler.external.hcp	default	boolean	false
network.protocol-handler.external.javascript	default	boolean	false
network.protocol-handler.external.moz-icon	default	boolean	false
network.protocol-handler.external.ms-help	default	boolean	false
network.protocol-handler.external.shell	default	boolean	false
network.protocol-handler.external.vbscript	default	boolean	false
network.protocol-handler.external.vnd.ms.radio	default	boolean	false
network.protocol-handler.warn-external-default	default	boolean	true
network.protocol-handler.warn-external.file	user set	boolean	true
network.protocol-handler.warn-external.ftp	user set	boolean	true
network.protocol-handler.warn-external.http	user set	boolean	true
network.protocol-handler.warn-external.https	user set	boolean	true

The 'Launch Application' dialog box on the right contains the following text:

This link needs to be opened with an application.
Send to:

Choose an Application

☐ Remember my choice for http links.

Buttons: Cancel, OK

Agenda

- 1 Mailing
- 2 Protocols
- 3 SPAM
- 4 Antispam
- 5 Thunderbird
- 6 TB-Preferences
- 7 Folders
- 8 Search

Using Folders

Using Folders


- Thunderbird uses **mbox** format to save the e-mails
 - in the mbox format the messages are stored sequentially in a (big) file
- a folder is either an mbox-Folder or it contains Subfolders
- folder can contain any number of subfolders
- folders have tree structure

How to create an IMAP Folder

- first you have to remove the mark for the IMAP server in Server Settings / Advanced :
 - Server supports folders that contain folders and messages
- on the account name click by the right mouse button and select: New Folder
- in the new window select which type of the folder should be:
 - either a Folder with subfolders
 - or it will contain messages only (mbox-Folder)

Create an IMAP folder

IMAP server setting: remove the mark

 **Advanced Account Settings**

For account "k.erdei-bull-imap"

IMAP server directory:

☒ Show only subscribed folders

☐ Server supports folders that contain sub-folders and messages

☒ Use IDLE command if the server supports it

Maximum number of server connections to cache

These preferences specify the namespaces on your IMAP server


Personal namespace:

Public (shared):

Other Users:

☒ Allow server to override these namespaces

Create an IMAP folder

 **New Folder**

Name:

Create as a subfolder of:

k.erdei-bull-imap

▲▼


This server restricts folders to two special kinds.
Allow your new folder to contain:

☒ Folders Only ☐ Messages Only

Cancel

Create Folder

Create an IMAP folder

 **New Folder**

Name:

Create as a subfolder of:

0-test-2

▲▼

This server restricts folders to two special kinds.
Allow your new folder to contain:

☐ Folders Only ☒ Messages Only

Cancel

Create Folder

Agenda

- 1 Mailing
- 2 Protocols
- 3 SPAM
- 4 Antispam
- 5 Thunderbird
- 6 TB-Preferences
- 7 Folders
- 8 Search**

Using Virtual Folders

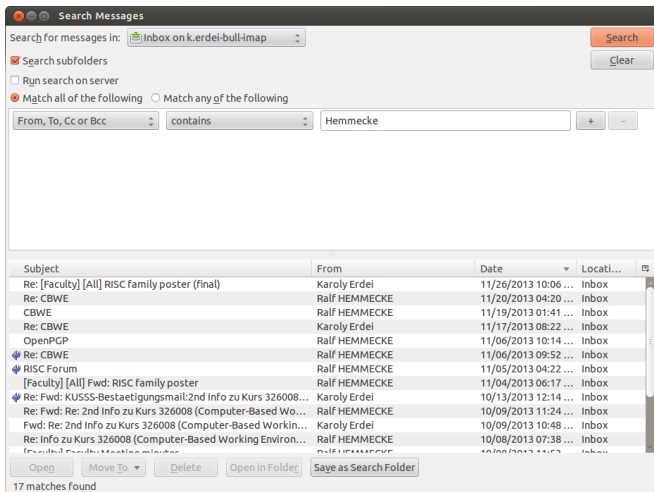
Saved Search Folders

Using Virtual Folders (VF)

- creating virtual folders:
 - specify a set of search criteria on messages, accounts
 - carry out the search
 - save the search as a **Search Folder** by the Save button (right bottom)
- you work with the virtual folders as a conventional folder
- VF is not a real folder, no messages are moved into it
- you can dinamically rerun the search each time .. and
- you can always modify the search criteria
 - click on the virtual folder / Properties
 - change Search criteria and click Update


Create a Virtual Folder (Search Folder)

Set the search criteria



Create a Virtual Folder

New Saved Search Folder

 **New Saved Search Folder**

Name:

Create as a subfolder of:

Select the folders to search:

☐ **Search Online** (Gives up-to-date results for IMAP and News folders but increases time to open the folder)

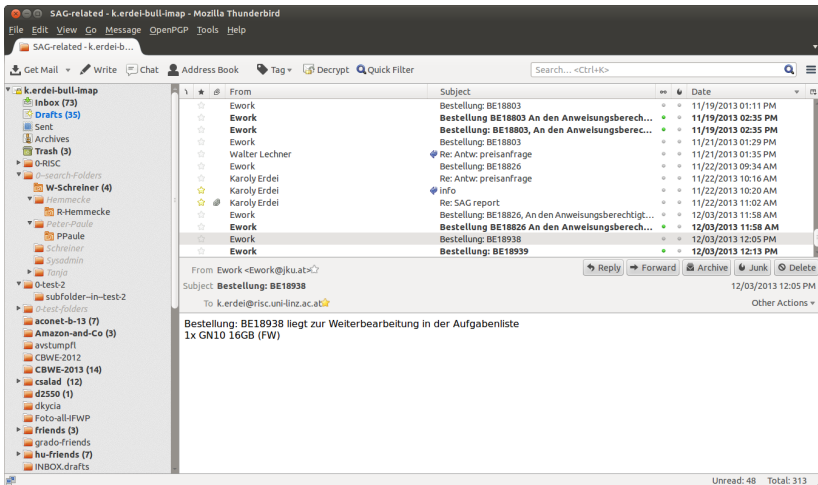
Configure the search criteria used for this saved search folder:

☒ **Match all of the following** ☐ Match any of the following ☐ Match all messages

<input type="text" value="From, To, Cc or Bcc"/>	<input type="text" value="contains"/>	<input type="text" value="hemmecke"/>	<input type="button" value="+"/>	<input type="button" value="-"/>
--	---------------------------------------	---------------------------------------	----------------------------------	----------------------------------

Create a Virtual Folder

The new Search Folder has been created

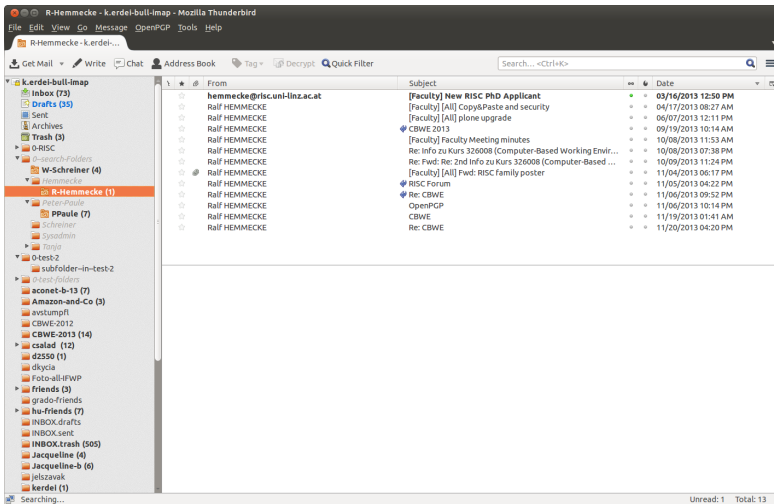


Click the new Search Folder / Properties. Update the Properties (From option)

The screenshot shows the Mozilla Thunderbird interface with the 'Edit Saved Search Properties for R-Hemmecke' dialog box open. The dialog box has a 'Name' field containing 'R-Hemmecke'. Below it, there is a 'Select the folders to search:' section with a 'Choose...' button. A checkbox for 'Search Online' is present and unchecked. The 'Configure the search criteria used for this saved search folder:' section has three radio buttons: 'Match all of the following' (selected), 'Match any of the following', and 'Match all messages'. Below this, a search criterion is defined: 'From' (selected from a dropdown), 'contains' (selected from a dropdown), and 'Hemmecke' (entered in the text field). The dialog has 'Cancel' and 'Update' buttons at the bottom. In the background, the email list shows messages from 'Ralf HEMMECKE' and 'Karoly Erdei'.

The new dinamically updated Search Folder

The new dinamically updated Search Folder



Agenda

- 1 Mailing
- 2 Protocols
- 3 SPAM
- 4 Antispam
- 5 Thunderbird
- 6 TB-Preferences
- 7 Folders
- 8 Search

User Guides at RISC for Mailing

The RISC setup

Configuration Mailing

- <https://www.risc.uni-linz.ac.at/internals/userinformation/completeguide/userguides/mailing/client-ssl/client-ssl.html>
- <https://www.risc.uni-linz.ac.at/internals/userinformation/completeguide/userguides/mailing/smtp-relay/smtp-relay.html>

Procmail

- <https://www.risc.uni-linz.ac.at/internals/userinformation/completeguide/userguides/mailing/procmail.html>

Spamassassin

- <https://www.risc.uni-linz.ac.at/internals/userinformation/completeguide/userguides/mailing/spamassassin/spamassassin.html>

End of Mailing

Thanks for your attention !