Debian/GNU Linux Mailing

Overview of the Mailing

Károly Erdei

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Agenda

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



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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, xfmail, 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)

risc.uni-linz.ac.at. 1363

Károly Erdei — Debian/GNU Linux Mailing

- defines MX resource record which host deliver the messages to
- there can be more mail exchangers (mail gateways) for the domain

TN MX

```
;; QUESTION SECTION:
;risc.uni-linz.ac.at. IN MX
;; ANSWER SECTION:
risc.uni-linz.ac.at. 1363 IN MX 20 mx1.risc.uni-linz.ac.at.
```

30 mx2.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



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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: MATI 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)
 - ESMPT is requested by client via EHLO instead of HELO
 - ENHANCEDSTATUSCODES, 8BITMIME, AUTH DIGEST-MD5 CRAM-MD5 PLAINE. 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 im 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 guarantueed
 - 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 achived 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

POP - you can download and delete the emails immediatly by your provider

IMAP - Internet Mail Access Protocol

IMAP - more features as by 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

IMAP - emails stay by default at your provider, not good for privacy!



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SPAM living with it

(Optional Material) - 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 became 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 (Optional Material)

How spammers work

- collecting e-mail addresses
 - from chatrooms, websites, newsgroups
 - infecting Windows PCs, where viruses collects 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 again spammers, SPAM

Agenda

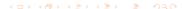
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Antispam techniques I

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

(Optional Material) - 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 algoritm sa-learn --spam --mbox /path/to/spaminput

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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
- Standars supported natively
 - POP and IMAP with SSL/TLS,
 - PGP signing, encryption, and decryption by the Enigmail extension
 - S/MIME secure email (digital signing and message encryption using certificates)
- Spam mail filtering
 - own Bayesian spam filter and support for SpamAssassin
- Security protection includes
 - disabling loading of remote images within messages
 - disabling JavaScript
- Additional features are available via extensions

Unfurtunetly Thunderbird already died, Mozilla stopped development

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

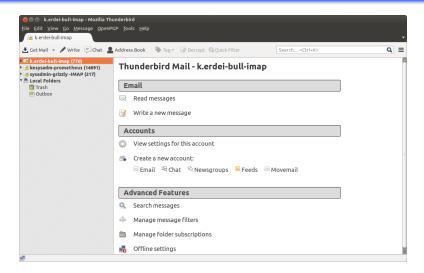
Do not synchronize using a RISC Computer !!!

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 !!!

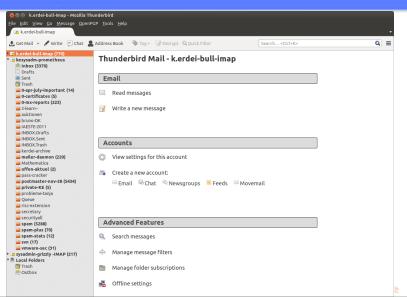
NEVER keep yours emails locally in your home directory on a RISC computer from other accounts (gmail, gmx, etc.)

Main Window of Thunderbird

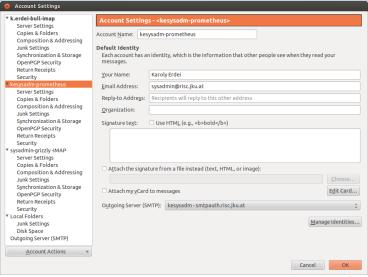


The kesysadm account

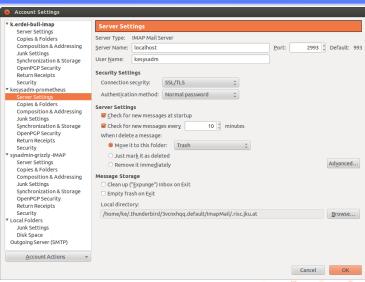
Folder list



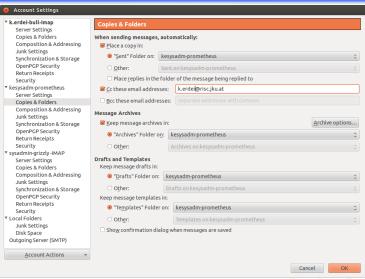
Settings for the kesysadm email account



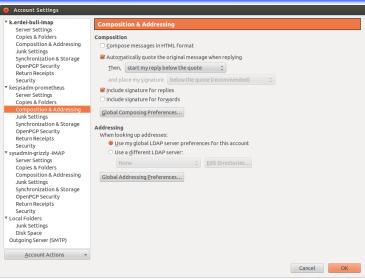
Setting for the incoming mail server IMAP server settings



Setting for Copies and Folders IMAP server settings

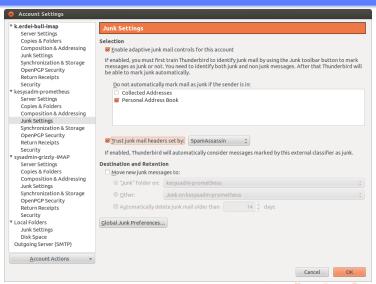


Setting for Compostion and Adressing Do not compose message in HTML format

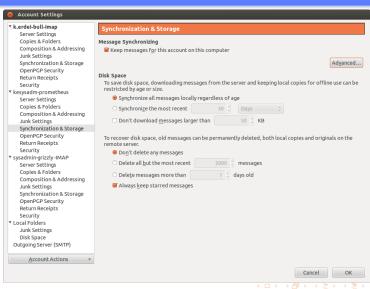


Junks settings

Trust headers set by Spamassassin

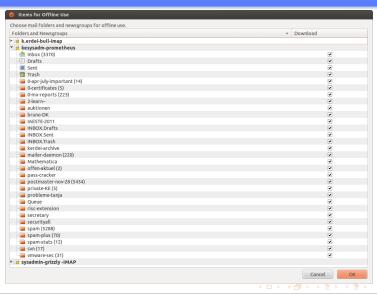


Synchronisation and storage Keep messages local on your laptop/PC

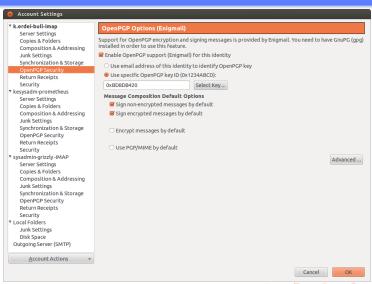


Synchronisation and storage

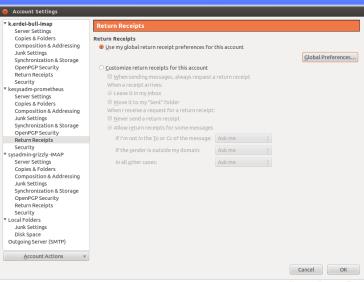
You can define for each folder the setting



OpenPGP Options (Enigmail) Enable OpenPGP optins

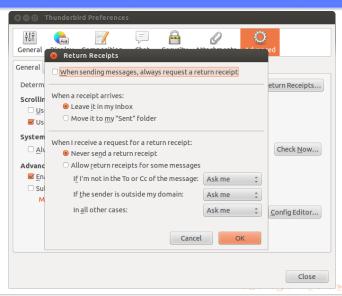


Return Receipts



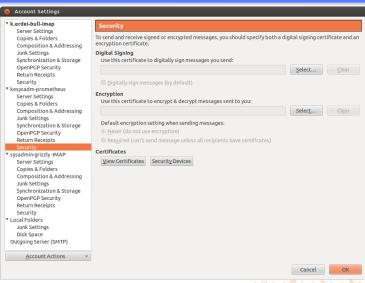
Return Receipts

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



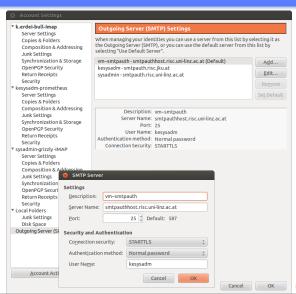
Security

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



Setting the stmp out host

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



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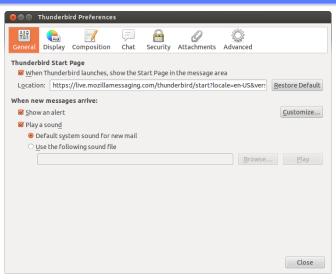
Mozilla Thunderbird Useful Preference settings

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

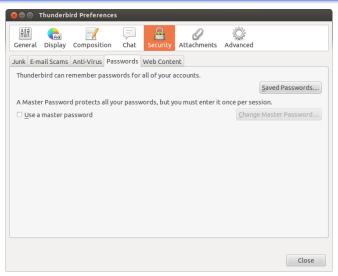
Thunderbird Preferences - General

Menu bar - Edit - Preferences



Thunderbird Preferences - Security - Passwords

Never save your passwords in Thunderbird



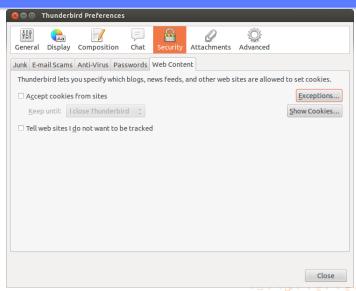
Thunderbird Preferences - Security - Passwords

This is the correct setting - no saved password



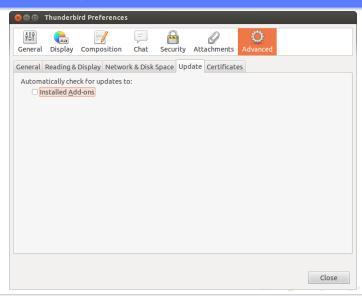
Thunderbird Preferences - Security - Web content

Never allow cookies!



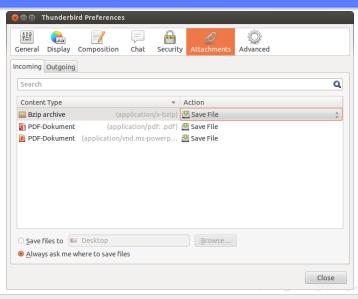
Thunderbird Preferences - Update

Do this manually from time to time



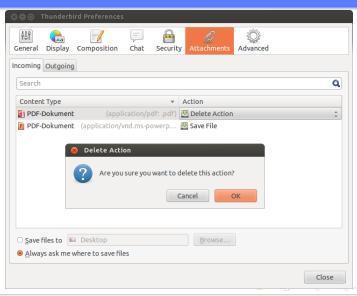
Thunderbird Preferences - Attachments - Incoming

At least use: save file option

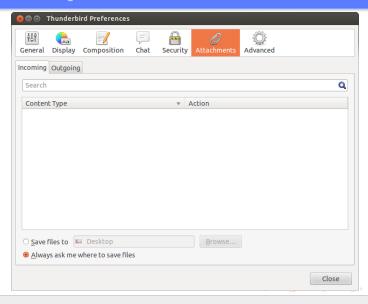


Thunderbird Preferences - Attachment - Incoming

Best is not to have here an action, delete them

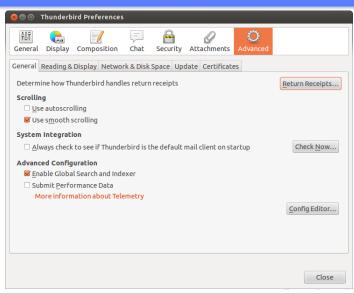


Thunderbird Preferences - Attachment - Incoming This is the right solution

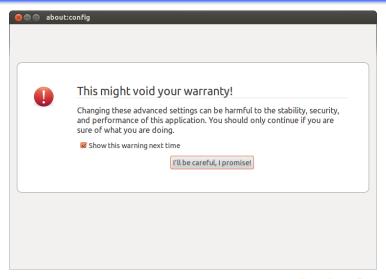


Thunderbird Preferences - Advanced

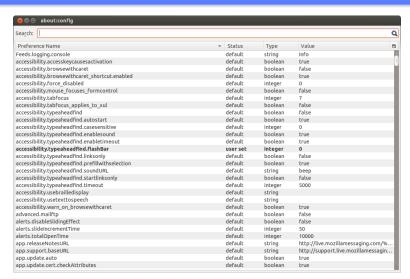
The Config Editor is the most powerfull unit (also dangerous)



Thunderbird Preferences - Advanced - Config Editor General view

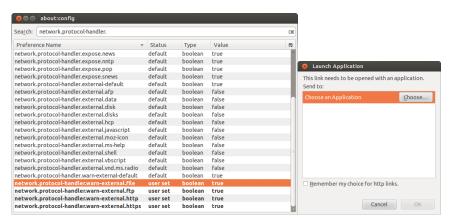


Thunderbird Preferences - Advanced - Config Editor Javascript options



Thunderbird Preferences - Advanced - Config Editor

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



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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

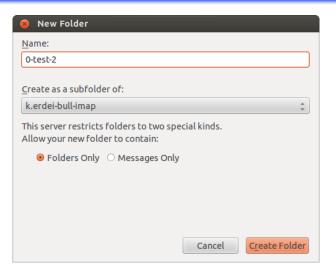
- first you have to remove the mark for the IMAP server in Server Settings / Advanced :
 - Server supports folders that contain folders and messages
- on the account name click by the right mouse button and select:
 New Folder
- in the new window select which type of the folder should be:
 - either a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

Create an IMAP folder

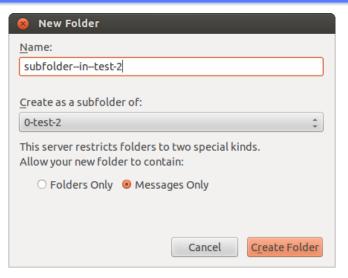
IMAP server setting: remove the mark

Advanced Account Settings	
For account "k.erdei-bull-ii IMAP server <u>d</u> irectory:	map"
Show only subscribed folders	
☐ Server supports <u>f</u> olders that contain sub-folders and messages	
☑ Use IDLE command if the server supports it	
Maximum number of server connections to cache 5	
These preferences specify the namespaces on your IMAP server	
Personal namespace:	"#mh/","#mhinbox",""
P <u>u</u> blic (shared):	"#public/","#news.","#ftp/","#sha
Other Users:	"~"
	Cancel OK

Create an IMAP folder



Create an IMAP folder



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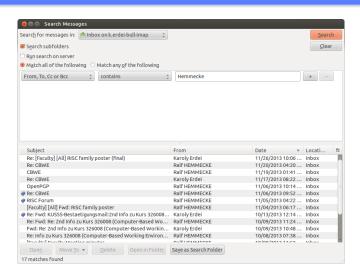
Using Virtual Folders

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



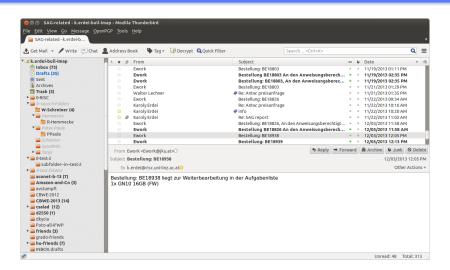
Create a Virtual Folder

New Saved Search Folder

New Saved Search Folder		
<u>N</u> ame:	RHemmecke	
Create as a subfolder of:	Hemmecke-Ralf ‡	
Select the folders to search:	Choose	
☐ 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 From, To, Cc or Bcc		
FIOIII, 10, CC OI BCC	ontains 5 nemmecke + -	
	Cancel	

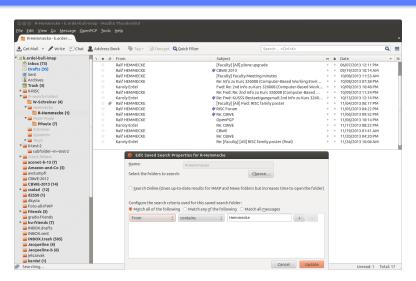
Create a Virtual Folder

The new Search Folder has been created



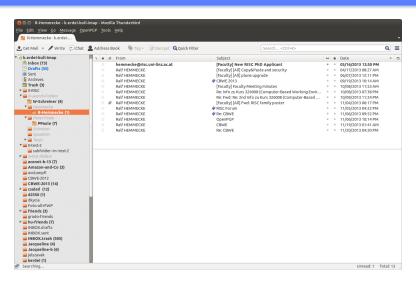
Using a Virtual Folder

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



Using a Virtual Folder

The new dinamically updated Search Folder



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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!