

The Ins and Outs of Electronic Mail – Part 1

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OPCUG



*Users helping users
for over 40 years*



Topics in this section

- Webmail vs Email clients (POP and IMAP)
 - differences
 - configuring accounts for POP or IMAP
 - advantages & disadvantages of each
- Email security
 - spam
 - deep dive: how mail servers talk
 - authentication
 - phishing

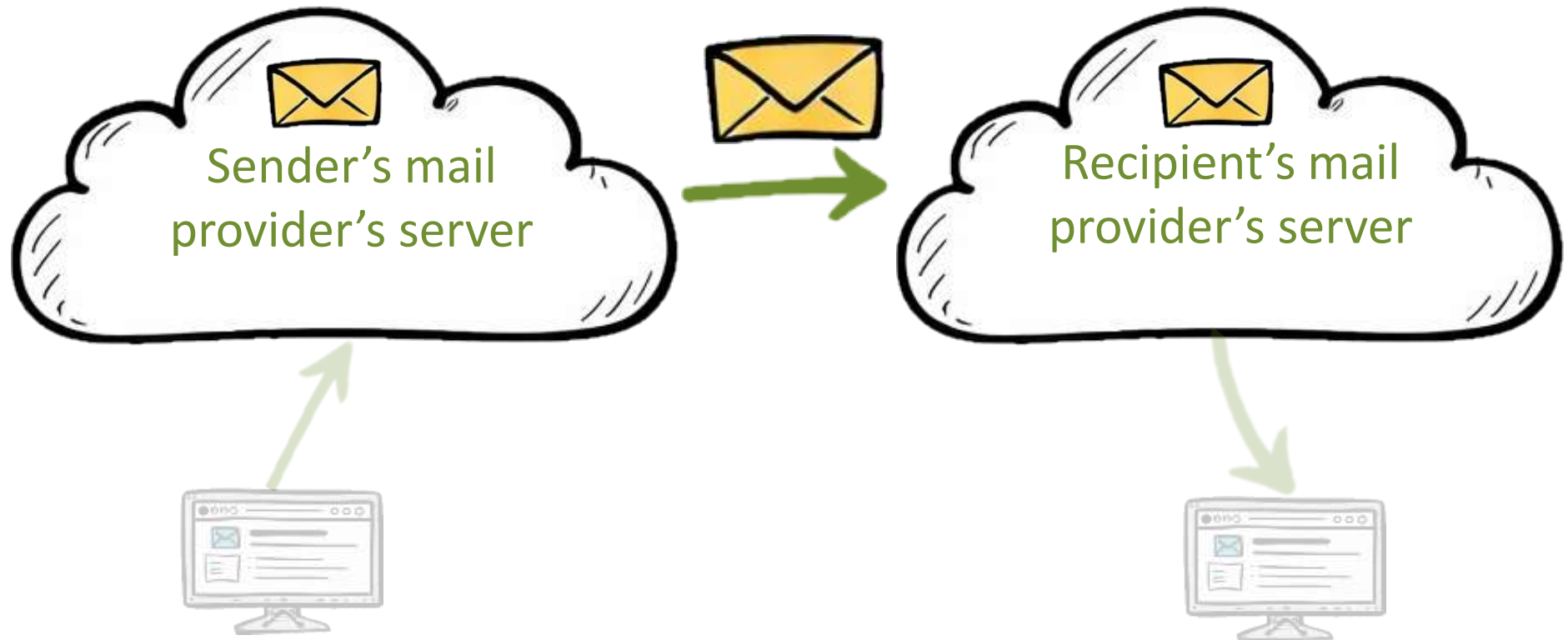




Webmail and email clients



How email flows



This shows the flow of email between two email servers

What about the users' computers used to send and receive the email?

Differences in how & where you compose and read the email

- **web-based email**
 - you interact through a **web browser**
- **POP/IMAP based email**
 - you interact through a **program (mail client) installed on your computer**



Methods of accessing email

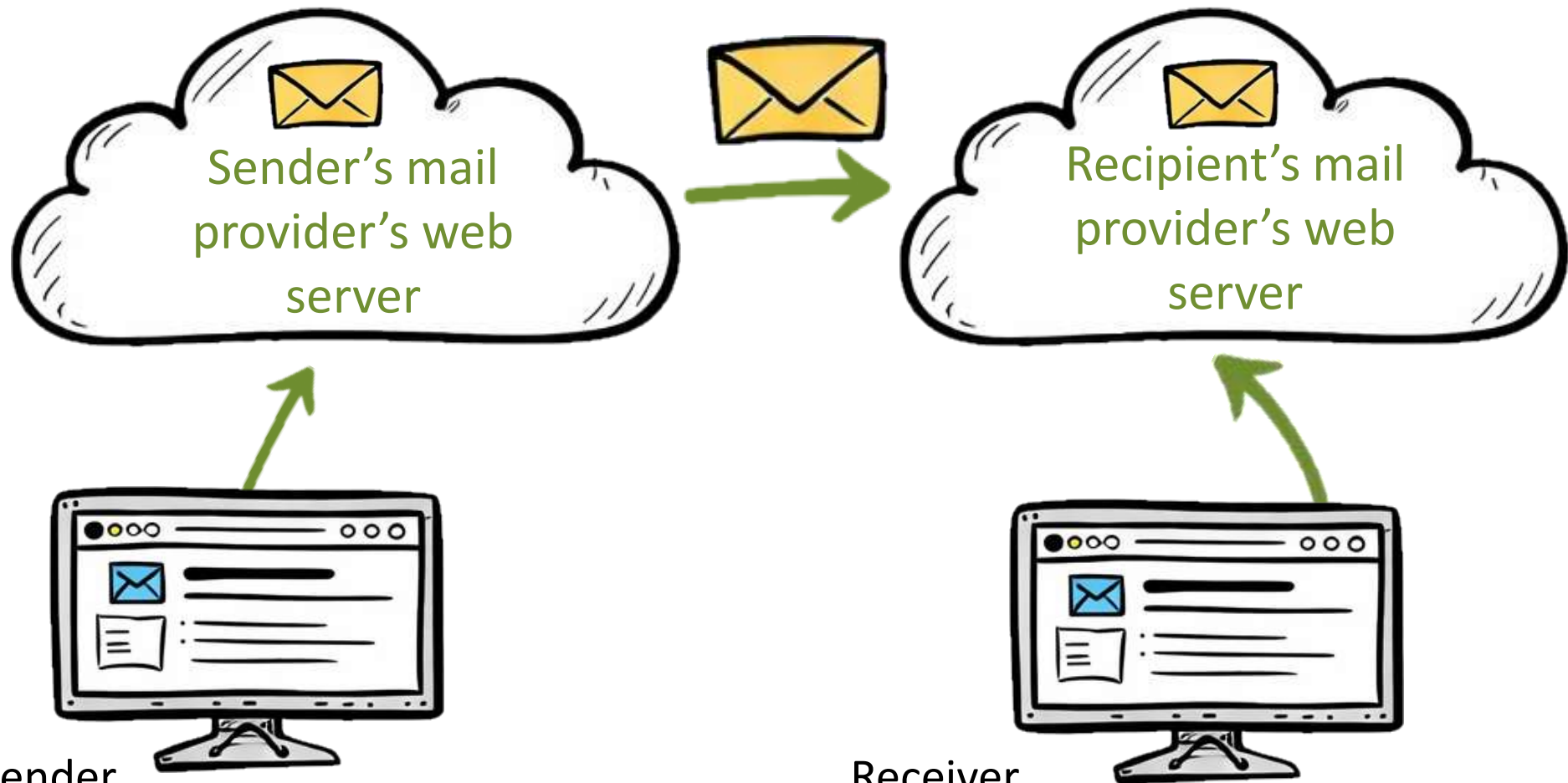
- Webmail
 - messages only reside on mail server
 - accessed using a web browser from any computer
- POP (Post Office Protocol)
 - emails downloaded to email client on local computer & *removed from the server*
 - *optionally* leave copies on the server
 - only deals with new emails in Inbox
 - one-way download (no synchronization)
- IMAP (Internet Message Access Protocol)
 - messages reside on the mail server
 - all folders *synchronized* between server & IMAP clients on one *or more* local computers
 - Inbox, Sent items, Drafts, Trash, any user-created folders, ...



Webmail



Webmail



Sender

- compose email in browser while connected to web server

Note:

- email doesn't exist on their computer
- sender creates email **on** web server

Receiver

- read email in browser while connected to web server

Note:

- email doesn't exist on their computer
- receiver reads email **on** web server



Webmail

- Setup is very simple
 - use any web browser to go to your email provider's website
 - sign in
- Most web-based email provides rich functionality
 - create & read email
 - folders for organizing email
 - address book
 - spam control
 - rules for auto-processing email
 - etc.



Webmail

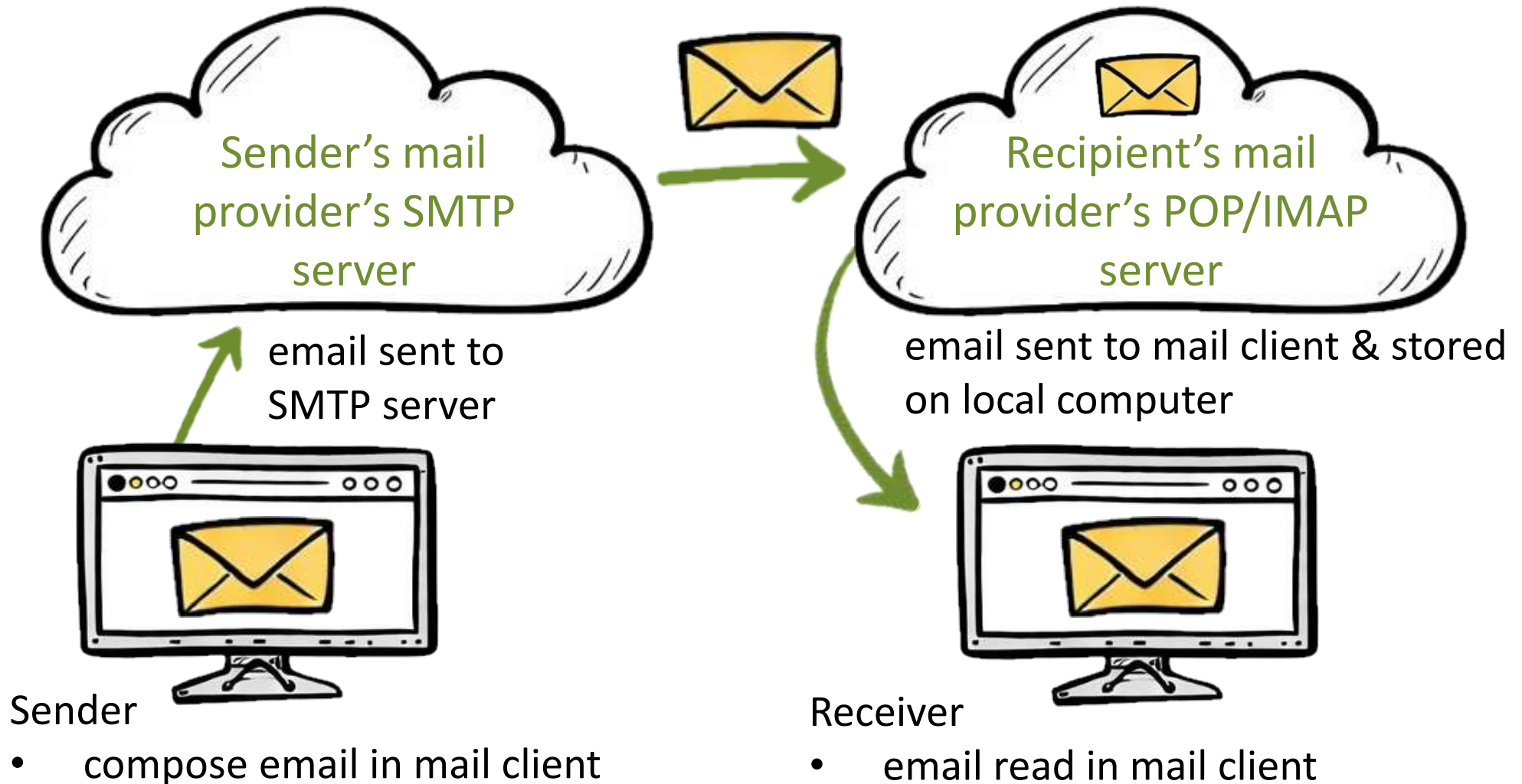
- Benefits
 - can access email from any web browser
 - does not require any software installed on computer
 - does not require any special configuration on computer
- Drawbacks
 - requires access to the Internet to do everything
 - create, send, read, forward, delete, search, print, file, etc.
 - email only stored on provider's server
 - what if they have an *issue*?
 - what if you change Internet Service Provider?
 - web interface may be limiting
 - drag & drop, multi-item selection, right-click menus, etc.
 - subject to space limitation of provider
 - when you run out of space, have to delete emails



POP and IMAP email



POP and IMAP email



Note:

- email passes through SMTP server
- email isn't stored on server

Note:

- email stored in mailbox on recipient's server until picked up by email client
- then stored on local computer



POP email

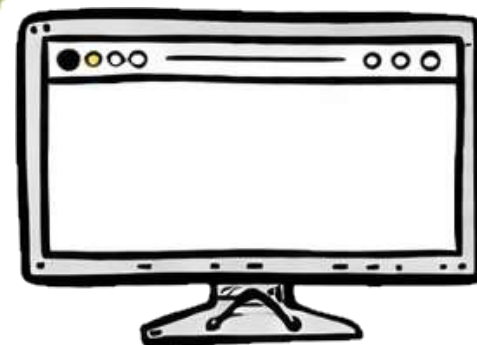


POP email

Email clients *not* configured
• *keep email on server*

new email in Inbox downloaded
to client

- email immediately deleted
from server



On second computer
no new email to download

Note: email deleted from server after downloaded to client
• not likely to run out of space on server



POP email

Email clients configured
• *keep email on server*

new email in Inbox downloaded
to client



On second computer
email in Inbox downloaded
to client

Note: email **never** deleted from server
• may run out of space on server



POP email

- Setup more involved than web-based
- Install a mail client that can handle POP email
- Configure the client to send & receive email
 - sending email: define the SMTP server to use
 - receiving email: define the POP3 server to use
 - define security requirements
 - check with your email provider for server and ports to use



POP email configuration

What are the server settings to access Gmail using POP

Here are the standard Gmail POP settings you need to use in your mail client.

google

Incoming mail (POP)

- Server: **pop.gmail.com** google
- Port: **995** google
- Security: **SSL/TLS required** (often shown as "SSL" or "SSL/TLS") clean +1
- Authentication: **required** google
- Username: your full Gmail address (e.g. **yourname@gmail.com**) clean
- Password: your Gmail password or an app-specific password if you use 2-step verification hesk +1

Outgoing mail (SMTP)

- Server: **smtp.gmail.com** clean +1
- Port: **587** (with STARTTLS/TLS) is recommended, or **465** with SSL in some clients developers.google +2
- Security: **TLS/STARTTLS** (or SSL if using port 465) developers.google +2
- Authentication: **required** (same username and password as above) hesk +1

Gmail web settings you must enable

In the Gmail web interface:

1. Go to Settings → "See all settings". clean +1
2. Open the **Forwarding and POP/IMAP** tab. clean +1
3. Under "POP download", choose either "Enable POP for all mail" or "Enable POP for mail that arrives from now on". YouTube google +1
4. Save changes. google +1

If you tell me which client you're using (Thunderbird, Outlook, Apple Mail, etc.), I can walk you through the exact fields to fill in.

Ask Perplexity.AI

- or check with mail provider

Will need

- server addresses
- server port numbers
- security requirements
- & maybe some extras

Some email client software can automate configuration based on the mail address

- known server config



POP email

- Benefits
 - richer client interface than web-based email
 - folders, rules, right-click menus, drag & drop, multi-item selection, etc.
 - access your email locally
 - doesn't require Internet access or server to access old email
 - may default to automatically delete email from server once downloaded to your computer, keeping you under the limit imposed by provider
 - *can be set to leave email on server allowing you to access email from multiple computers*
- Drawbacks
 - if set to leave messages on server, can run out of space
 - manually clean up server, using their web interface to access mailbox
 - only deals with Inbox
 - if you have folders on the server, email in those folders not copied to client e.g. if you use web-based email, create folders, & move emails there
 - one-way copy of emails: from server to client
 - doesn't copy sent items, email in local folders, etc. to server
 - these only exist on computer where created
 - if using multiple computers, can be considerable problem!



IMAP email



IMAP email



2-way synchronization between server and client computer

Synchronizes *all* folders

- inbox, sent items, folders you create, etc.



If you use multiple computers with IMAP

- all email kept in sync between *all* computers (and server)



IMAP email

- Benefits
 - richer client interface than web-based email
 - folders, rules, more Windows-like with right-click menus etc.
 - access your email locally
 - may use multiple computers
 - access all emails from server (web interface) and all client computers
- Drawbacks
 - may hit space limitations imposed by provider
 - unless you delete emails or move them to a local folder
 - if moved to a local folder, lose access from other computers
 - local folders not synced to server (and other computers)



IMAP email configuration

What are the server settings to access Gmail using IMAP

To access Gmail over IMAP from an email client (like Outlook, Thunderbird, or Apple Mail), use the incoming server settings below, and also make sure IMAP is enabled in your Gmail settings. [help](#)

[YouTube](#)

Gmail IMAP (Incoming Mail) Settings

These are the standard IMAP server settings for Gmail:

- **Server / Host:** [imap.gmail.com](#) [YouTube](#) [clean](#)
- **Port:** [993](#) [clean](#) [YouTube](#)
- **Encryption / Connection type:** SSL/TLS (sometimes called "SSL only" or "SSL") [help](#) [YouTube](#)
- **Username:** Your full Gmail address (e.g., [yourname@gmail.com](#)) [YouTube](#) [clean](#)
- **Password:** Your Gmail password or an App Password if 2FA is on [reddit](#) [YouTube](#)

Most modern email clients will automatically suggest these settings when adding a Gmail account as IMAP. [google](#) [YouTube](#)

SMTP (Outgoing Mail) Settings (for sending)

If the client also needs to send mail through Gmail, use these SMTP settings:

- **Server / Host:** [smtp.gmail.com](#) [google](#) [YouTube](#)
- **Port (SSL):** [465](#) (recommended with SSL) [google](#) [YouTube](#)
- **Port (TLS/STARTTLS):** [587](#) (if TLS/STARTTLS is preferred) [clean](#) [YouTube](#)
- **Encryption:** SSL for port 465; TLS (or STARTTLS) for port 587 [YouTube](#) [google](#)
- **Authentication:** Yes (use same username/password as IMAP) [google](#) [YouTube](#)

Prerequisites in Gmail

Before IMAP will work, two things must be set up in Gmail itself:

1. IMAP must be enabled

- In Gmail (web), click the gear icon → "See all settings" [google](#) [YouTube](#)
- Go to the "Forwarding and POP/IMAP" tab [google](#) [YouTube](#)
- In the IMAP Access section, select "Enable IMAP" [YouTube](#) [google](#)
- Click "Save Changes" at the bottom [google](#) [YouTube](#)

2. Secure sign-in (for 2FA / 2-step Verification)

- If 2-step Verification is turned on, Google no longer allows using your regular password in older IMAP/SMTP clients [reddit](#) [YouTube](#)
- Instead, generate an App Password (in Google Account → Security → App passwords) and use that as the IMAP password [reddit](#) [YouTube](#)
- If the client supports OAuth 2.0 (like modern Outlook), it can sign in without an App Password [reddit](#)

Notes for Different Email Clients

- **Outlook / Windows Mail / Thunderbird:** Choose account type "IMAP" and enter the server details above [google](#) [YouTube](#)
- **Apple Mail / iOS Mail / macOS Mail:** Select "IMAP" account type; it usually auto-fills most Gmail settings [YouTube](#) [google](#)
- **Android mail apps:** Usually have a "Gmail" option that handles IMAP/SMTP automatically; manual setup uses the same server names and ports [peterbird](#) [YouTube](#)

If a connection fails, double-check that IMAP is enabled, SSL is turned on, and the right password / app password is entered. [google](#) [YouTube](#)

Ask Perplexity.AI

- or check with mail provider

Will need

- server addresses
- server port numbers
- security requirements
- & maybe some extras

Some email client software can automate configuration based on the mail address

- known server config



When to choose webmail

- You want the simplest configuration
 - nothing to configure, no software to install
- You want to be able to access all email from anywhere
 - use any computer with a web browser & Internet access
- You are not concerned about being able to read email without access to the Internet
 - requires a live Internet connection
- You don't need to keep all email forever
 - when you run out of space on mail provider's server
 - delete some email to make room for more
 - or pay mail provider for extra space



When to choose POP

- You use a single computer to manage all email
 - create, read, send, search, print, etc.
- You don't want to worry about space on mail provider's server
 - use the option that deletes email from server once delivered to your computer
- Option to leave email on server
 - allows you to receive email on multiple computers
 - can result in significant confusion about location of things like sent email
 - only *Inbox* is handled by POP
- *Generally, POP is a poor choice*
 - *unless you really consider all ramifications*



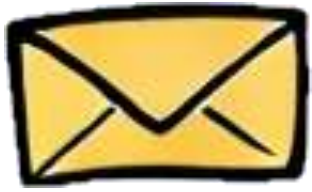
When to choose IMAP

- You want the best of both worlds
 - can still use Webmail to access all email
- You don't mind installing an IMAP email client
- You want to have email stored in multiple locations
 - mail provider's server, one or more computers you own
- You don't mind dealing with cleanup when you run out of space on mail provider's server
 - move items to a local folder on local computer



Email security

- spam
- deep dive: how mail servers talk
- authentication
- phishing



Spam



Spam

- Unsolicited messages sent in bulk to many recipients, often for commercial purposes
 - https://en.wikipedia.org/wiki/Email_spam
 - <https://youtu.be/ycKNt0MhTkk>

Monty Python's Flying Circus

- Series 2, Episode 12 (first aired in 1970)
- <https://www.youtube.com/watch?v=ycKNt0MhTkk>



What've ya got, then?

I've got spam, spam, eggs, bacon & spam

I don't like spam!!!



Problems with spam

- Clutters mailboxes
- Wastes time
- Poses security risks
 - malware infections
 - identity theft
- False positives with spam filters
 - lost information
- Most major email providers have spam filters
 - help reduce amount of spam that reaches your mailbox

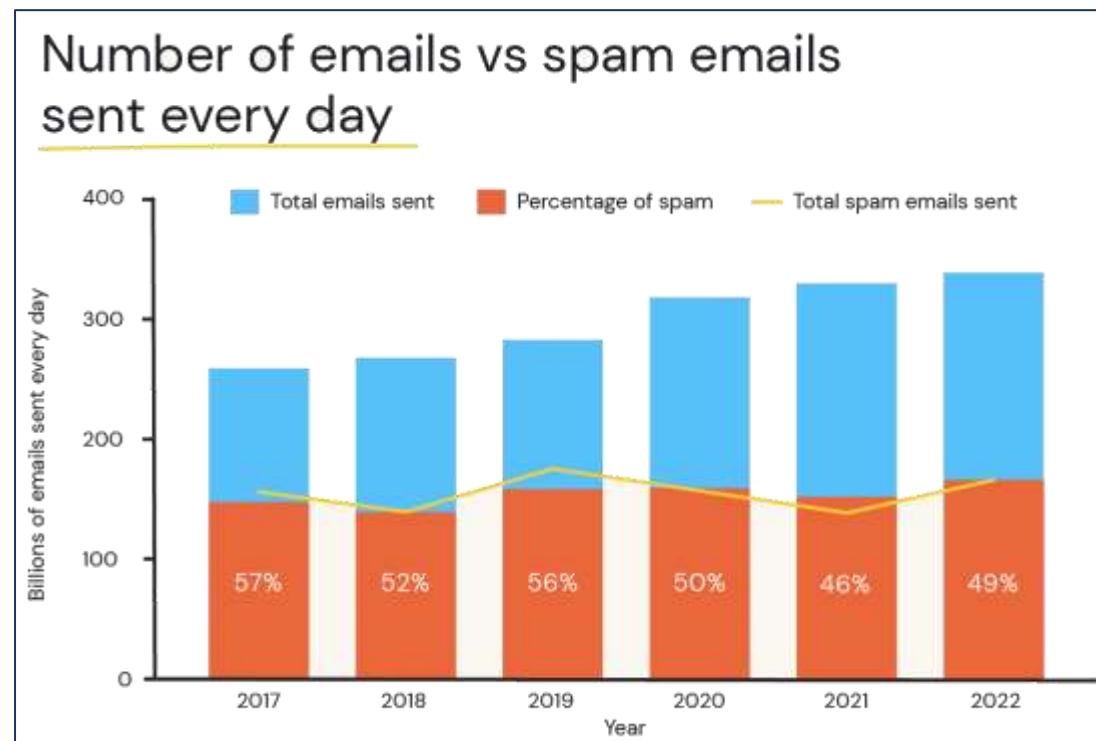
Gmail stops more than 99.9% of spam, phishing & malware and blocks nearly 15 billion unwanted emails every day (Google, October 2023)

- POP/IMAP clients typically have spam controls
 - in *some* cases, can be more effective than server spam control



Cost of spam

- Microsoft founder Bill Gates received four million emails per year, most of them spam
 - reported by Steve Balmer in 2004
- 160 billion spam emails sent *every* day in 2023
- \$25.5 billion
 - est. total loss by 56.2 million people in 2023
- \$50 billion
 - est. worldwide productivity cost of spam in 2004



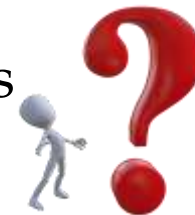
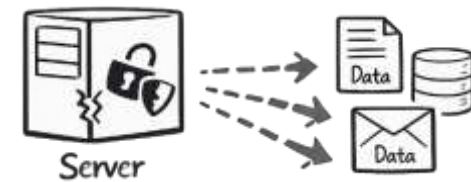
<https://www.emailtooltester.com/en/blog/spam-statistics/>

https://en.wikipedia.org/wiki/Email_spam#Cost_of_spam



How do spammers get your email address?

- Web scraping
 - collecting addresses from websites & forums
 - sophisticated scraping can bypass obfuscation
 - `joe.user(@)example.com`, `joe.user(at)example.com`
- Data breaches
 - purchased lists from compromised databases
- Guessing
 - combine common names with popular domains
 - e.g. `first.last@domain.com`
- Phishing and sign-ups
 - fake forms, giveaways, or phishing emails trick you into submitting your address
- Malware or bad apps
 - harvest contacts from your device





Eliminating Spam

Cancel all your email accounts



Things that *may* limit spam

- Limit Exposure
 - avoid posting your email address on websites, forums, & social media
- Use disposable email addresses
 - some mail providers (e.g. National Capital Freenet) allow you to create aliases you can delete if used by spammers
- Enable junk mail controls, e.g.
 - Thunderbird: Tools > Settings > Privacy & Security > Spam
 - Gmail: spam filtering enabled by default & uses AI to block most spam
- Don't reply to spam
 - most spam comes from spoofed addresses & replies won't go to spammer
- Don't click links in spam, including unsubscribe
 - confirms to spammer the address is active *and* you read their spam
- Track and report spam
 - *if you want to play whack-a-mole*
 - use spamcop.net to track true origin of spam and report to admins
 - <https://www.spamcop.net/>
- **Just delete it and move on**



Have I Been Pwned

- Has your email address been found in a data leak
 - likely will be used by spammers

Check any email address

Have I Been Pwned

Check if your email address is in a data breach

chris.taylor@opcug.ca **Check**

9 Data Breaches

Oh no — pwned! This email address has been found in multiple data breaches. Review the details below to see where your data was exposed.

Cutout.Pro

In February 2024, the AI-powered visual design platform Cutout.Pro suffered a data breach that exposed 22M records. The data included email and IP addresses, names and salted MD5 password hashes which were subsequently broadly distributed on a popular hacking forum and Telegram channels.

Compromised data:

- Email addresses
- IP addresses
- Names
- Passwords

Twitter (2004)

In early 2023, over 100M records scraped from Twitter appeared on a popular hacking forum. The data was obtained sometime in 2021 by abusing an API that enabled email addresses to be resolved to Twitter profiles. The subsequent results were then compiled into a corpus of data containing email addresses alongside public Twitter profile information including names, usernames and follower counts.

Compromised data:

- Email addresses
- Names
- Social media profiles
- Usernames

From: Have I Been Pwned <noreply@haveibeenpwned.com> @
 To: chris.taylor@opcug.ca @ 2024-02-28, 5:31 p.m.
 Subject: You're one of 19,972,829 people pwned in the Cutout.Pro data breach

;-)-have i been pwned?

sign up: notifications for future disclosures

You signed up for notifications when your account was pwned in a data breach and unfortunately, it's happened. Here's what's known about the breach:

Email found:	chris.taylor@opcug.ca
Breach:	Cutout.Pro
Date of breach:	26 Feb 2024
Number of accounts:	19,972,829
Compromised data:	Email addresses, IP addresses, Names, Passwords

Your email in a data breach?

- sign onto site
 - change password &
 - answers to security questions

<https://haveibeenpwned.com>



How do mail servers talk?

DEEP DIVE



Sending system **a.org** connects to receiving system **b.com** on port 25

helo a.org
• *Hi, I'm server a.org*

220 b.com ESMTP Postfix
• *Hi, I'm server b.com running ESMTP software Postfix*

MAIL FROM: <joe@a.org>
• *I have an email from joe@a.org*

250 Hello a.org, I am glad to meet you

RCPT TO: <pete@b.com>
• *The email is for pete@b.com*

250 Ok

DATA
• *I am ready to send the email*

250 Ok
• *assuming pete@b.com valid email*

354 End data with <CR><LF>.<CR><LF>
• *Send email; end with a period on a line by itself*

White: actual conversation *Yellow: what it means*

DEEP DIVE



Two mail servers talking



Message-ID: <123@b.org>
From: "Joe Smith" <joe@a.org>
To: "Pete Jones" <pete@b.com>
Date: Wed, 11 Feb 2026 16:02:43 -0500
Subject: See you tomorrow

I'll be there at 10 am. Wait for me.

- *message header*
- *text of email*
- *end by <CRLF>.<CRLF>*

Quit

- *I am done*

250 Ok

- *email accepted for delivery*

221 Bye

- *closes connection*

White: actual conversation *Yellow: what it means*



RFC 5321 standard

- Receiving system uses numeric codes
 - text after numeric code optional
- Series codes & some examples
 - **2xx: Positive completion**
 - 220: service ready
 - 221: service closing
 - 250: action or command succeeded
 - **3xx: Positive intermediate (more info needed)**
 - 354: ready to receive email (in response to DATA command from sender)
 - **4xx: Temporary failure (retry later)**
 - 451: processing error; server issue; retry
 - 452: email too large; reduce message size & retry
 - **5xx: Permanent failure (don't retry)**
 - 550: invalid email address
 - 552: mailbox full
- If you get DSN (delivery status notification) or NDR (non-delivery report) when sending email
 - look for **4xx** or **5xx** series numeric codes for reason



Authentication & integrity

- attempts to eliminate spam

- **At no point did the receiving email server say**
 - *how do I know you aren't a spammer?*
- Several methods of authentication have been developed
 - validate sender's email address
 - Sender Policy Framework (SPF)
 - DomainKeys Identified Mail (DKIM)
 - Domain-based Message Authentication (DMARC)



Validate sender's email address

- Is sender's email fake?



Instead of...

MAIL FROM: <joe@a.org>
• *I have an email from joe@a.org*



250 Ok

Go ahead, but I will test

- ***could** I send an email to joe@a.org*
- *if it fails, must be a spammer*
- ***discard incoming email***

- Spammers don't use their own email address
 - people receiving spam will complain
 - spammer will have their account cancelled
- Spammers use valid email addresses
 - just not their own!
 - *ever have someone accuse you of spamming them?*



More sophisticated authentication & integrity

- SPF (Sender Policy Framework)
 - domain owners publish a DNS *TXT* record
 - lists authorized IP addresses or servers that can send email for their domain
 - receiving servers check sending server against list
 - failure indicate *potential* forgery
- DKIM (DomainKeys Identified Mail)
 - cryptographic signature added to email headers
 - receivers verify the signature matches
- DMARC (Domain-based Message Authentication)
 - builds on SPF and DKIM
 - requires alignment between the *From* header domain and receiving domain
 - includes policies & reporting so owners monitor unauthorized use



Problems with authentication & integrity

- Testing sender's email address
 - spammers can use random, real email addresses
- *Nothing* in the RFCs says email systems
 - *must use* SPF, DKIM, or DMARC
- Lack of SPF, DKIM, DMARC
 - doesn't *definitively* say email is fraudulent
 - receiving email systems may just tag the email as suspicious
- Since Feb 2024 Google requires:
 - senders to Gmail users must use SPF & DKIM
 - bulk senders (over 5,000 emails per day) also need DMARC



What works to reduce spam?



Major email providers

- Use very sophisticated means of detecting spam
 - cocktail of many techniques
 - secret sauce
- Very effective

*Gmail stops more than 99.9% of spam, phishing & malware and blocks nearly **15 billion unwanted emails every day** (Google, October 2023)*



Bayesian filters

- Predicts likelihood of a new email being spam
 - based on what you have said is spam in the past
- You indicate which emails are spam *to you*
 - email containing *breast enlargement* is spam
 - ...unless you are a doctor!
- Filter gets smarter over time
- Many POP/IMAP email clients employ Bayesian filters

A Plan for Spam - Paul Graham (August 2002)

<https://www.paulgraham.com/spam.html>



Can you detect spam?

- inevitable at least *some* spam will make it through to your mailbox



Who sent that email?

- Nobody can/should count on *From* address
 - can *never* be sure *From* is correct
- Be suspicious
 - look for additional clues

I don't recognize address

From Notification Center <help@turito.com> @

...but I use Camtasia

To chris.taylor@opcug.ca 📧

2026-01-05, 4:21 p.m.

Hover mouse over link

Subject: Fwd: New Feature Information for Camtasia Users

• *don't click!*

Upcoming Feature Update

Hello,

This message is to inform you about an upcoming feature currently being prepared for Camtasia users.

Our team is working on a **new assistant feature** designed to support common tasks and improve overall workflow within Camtasia. The feature is still in progress and will be shared gradually.

If you'd like to learn more about this update, additional details are available below.

Status bar → | (🌐) https://rockdesanjuan.com/apps

• *not likely from Camtasia*

 View Feature Details

You're receiving this email because you use Camtasia or have previously interacted with our services.

Thank you for your continued use of Camtasia.

Kind regards,

The Camtasia Team



Who sent that email?

- I never, *ever, ever, ever* trust the *From* address
 - they can *always* be spoofed...and can be *anything*
 - Alan German <Alan.German@opcug.ca>
 - looks fine
 - glean no useful information
- Obvious fake *From* address helps identify an email as spam/fraud
 - TD Bank <postmaster@8c4a90a8e4.nxcli.io>
 - *highly* unlikely TD Bank is emailing from a mailbox in the *British Indian Ocean Territory* (TLD: IO)
 - obvious spam/scam
 - don't need to look further



Spam or not spam?

Thunderbird labelled as spam

From MRS. FRANCIS AND PATRICK CONNELLY <hjl@dongyanglf.co.kr> @

To Recipients <hjl@dongyanglf.co.kr> @

Reply to: donations@heritagefoundations.online @

Subject Re: INSTANT CRYPTO PAYMENT NOTIFICATION

You have been gifted 1,500,000 Dollars in crypto currency by Mrs. Frances & Mr. Patrick Connolly, the lucky winner of the Euro Million lottery, you may google our name to learn more about us and the donations. This was donated to you as part of our charitable donations which is given back to the society.

For claims kindly send below details to 'Instant Crypto Payment Desk' attached

(1) Full Name
(3) Age
(5) Country

Regards
Mrs. Frances & Mr. Patrick Connolly

Don't recognize *From*

- alas, from South Korea
- *probably* a scam?


Someone wants to give me \$1.5 million


- sweet!


Okay, an obvious scam





Spam or not spam

From IT News Library <info@thankyou.itnewslibrary.com> 

To chris.taylor@opcug.ca  2026-01-20, 10:59 a.m.

Reply to Reply <reply@itnewslibrary-email.com> 

Subject **Thank You**

 To protect your privacy, Thunderbird Beta has blocked remote content in this message. 


[Options](#) ▾

[Unsubscribe / Remove / Opt Out](#)

Our goal is to serve as a comprehensive resource hub for all your research needs. Beyond the content you've just requested, we offer a wide array of insightful materials - from cutting-edge case studies and insightful blog posts, to webinars led by industry experts and detailed how-to guides.

We cover a diverse array of topics aimed at helping you succeed in your professional efforts.

Thank you once again for downloading our content. We're looking forward to helping you elevate your professional efforts to new heights.



If you do not wish to receive our emails please click Unsubscribe below or reply "Unsubscribe" to this email.

Don't recognize *From*

- maybe I forgot I signed up for a service
- doesn't *look* suspicious

Don't enable remote content

- unless *sure* email is legit
- spammers use remote image tags to show you opened email

Don't use unsubscribe links unless *sure* it is legit email

Could be a legit email, but

- *Thunderbird flagged it as spam*

To be safe – ignore it

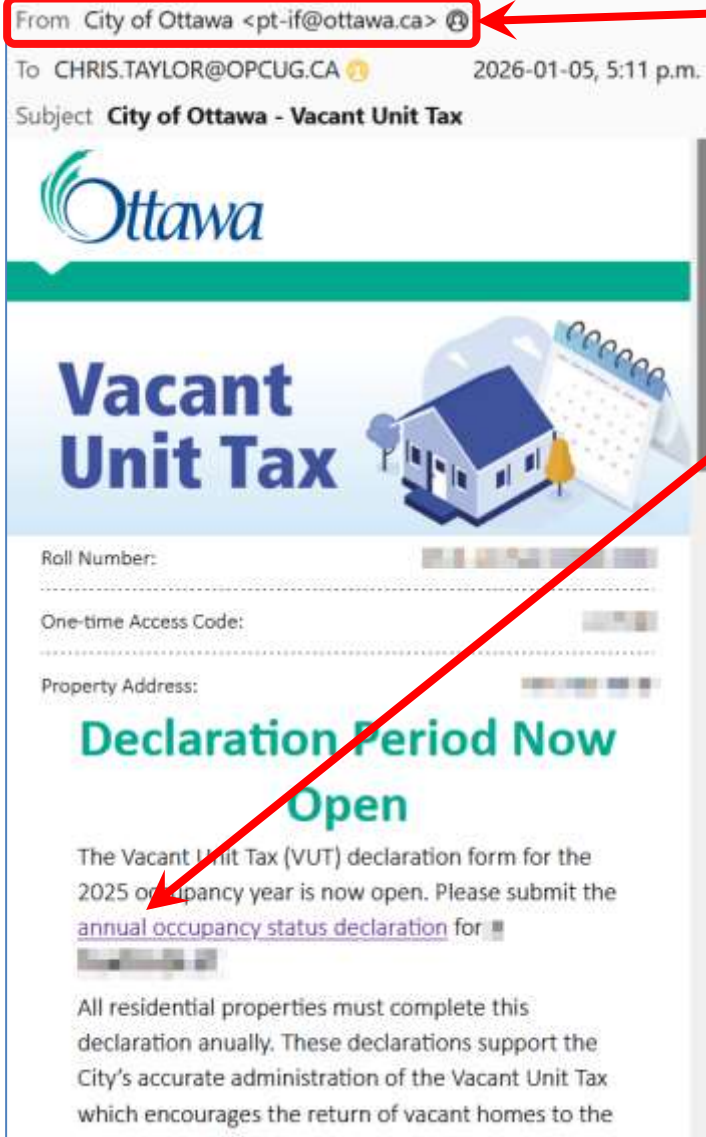
I actually don't know if this is spam!

- check my password manager to see if I have an account at site
- go to site manually and see if I recognize it



Spam or not spam?

Thunderbird labelled as spam



From looks legit

- but, *of course*, don't trust it

Looks like an expected email

- *probably* not spam
- *could be* someone trying to trick me

Hover over link

→ | (🔍) <https://ottawa.ca/en/living-ottawa/taxes/property-taxes/vacant-unit-tax/declare-property-status>

- *looks legit*
- domain *Ottawa.ca*

To be safe

- manually browse to *My Service Ottawa*

This was a false positive

- might have been costly to miss!
- *check spam folder regularly for false positives*



Phishing

- a dangerous form of spam



What is phishing?



- Attacker sends fake email
 - looks like it's from a legit company
 - your bank, Microsoft, Amazon, a coworker, etc.
- Attacker wants to
 - trick you into giving up sensitive information or clicking something harmful
 - steal login credentials (usernames and passwords)
 - capture financial details such as credit-card numbers or bank-account information
 - install malware on your device through links or attachments
- Email often pretends to be urgent
 - *Your account will be closed!*
 - *Verify your payment now*
- Usually includes a link
 - opens a fake login page that looks just like the real website
 - anything you type goes to the attacker
- Sender address & links often slightly wrong
 - service@amaz0n-support.ca instead of service@amaz0n-support.ca
 - https://www.amaz0n.ca instead of https://www.amazon.ca



Protecting against phishing



- Don't click links or open attachments in unexpected or suspicious emails
- Go directly to the real website
 - *by typing the URL yourself* instead of using link in the email
 - if you think it is *not* a scam, you must be familiar with the site
- Contact sender using *known good* email/ phone number
 - *don't trust email addresses or phone numbers in the email*
 - if it's your bank, Hydro Ottawa, CRA, ... you have paperwork from them with contact info
- In case you get successfully phished
 - enable multi-factor authentication important accounts
 - stolen credentials less useful to attackers

The Ins and Outs of Electronic Mail – Part 2

Alan German
Ottawa PC Users' Group

February 11, 2026

OPCUG



*Users helping users
for over 40 years*



Topics in this session

1. Organizing mail with folders and filters
2. Transferring address books/mail folders
3. Creating and using portable E-mail addresses



Thunderbird

Free Your Inbox

Meet Thunderbird, the email and productivity app that maximizes your freedoms.

<https://www.thunderbird.net/en-US/>

We will use Thunderbird as a specific example of an E-mail client; however, many other programs work in a similar fashion

Folders and Filters

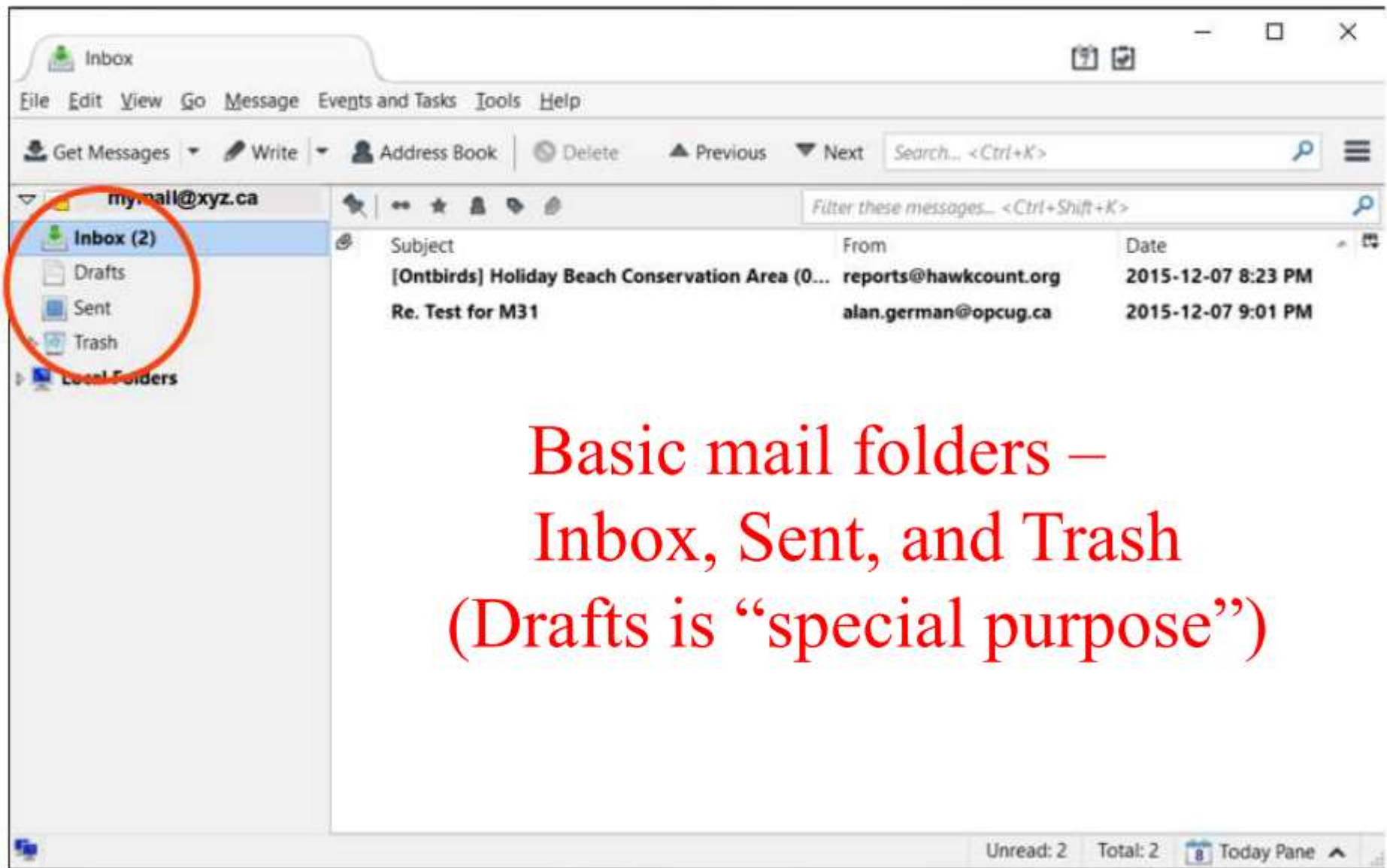
Do you have a single inbox containing dozens or hundreds of messages?

Do you share an inbox with your significant other (and hate having to sift through all their junk to find your gems)?

It's time to organize your E-mail with a set of folders...

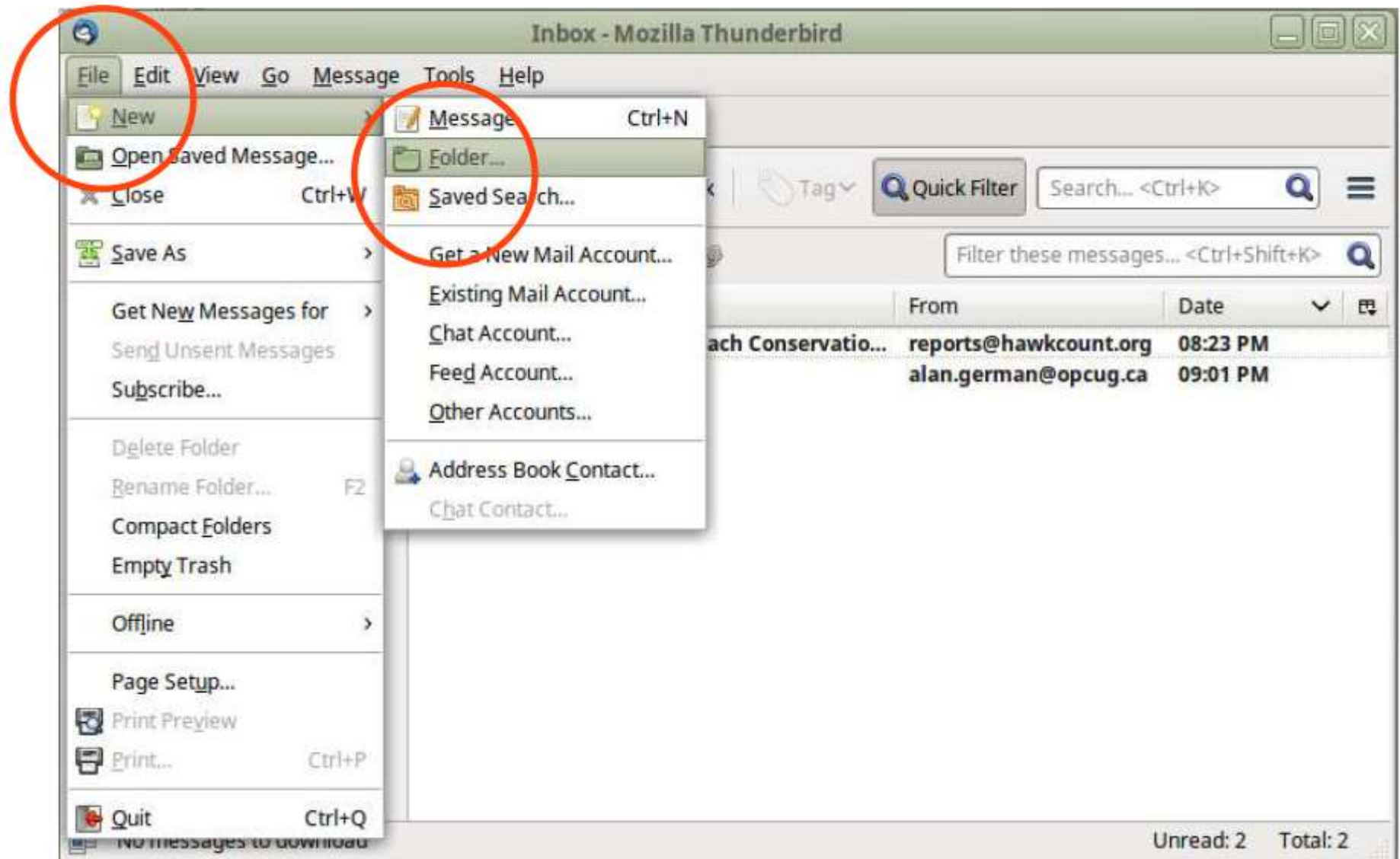
...and, make sorting through messages automatic with a range of filters

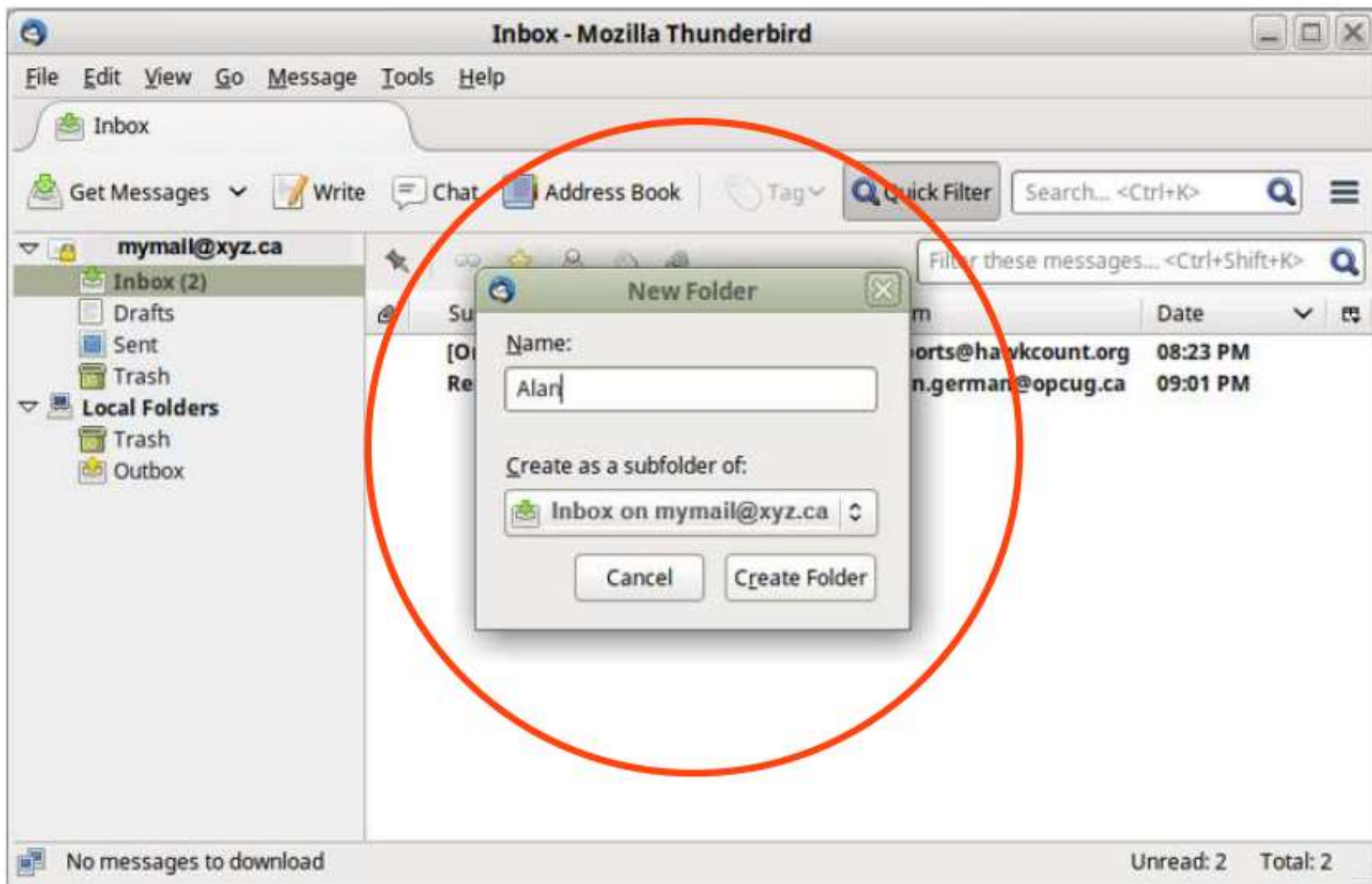


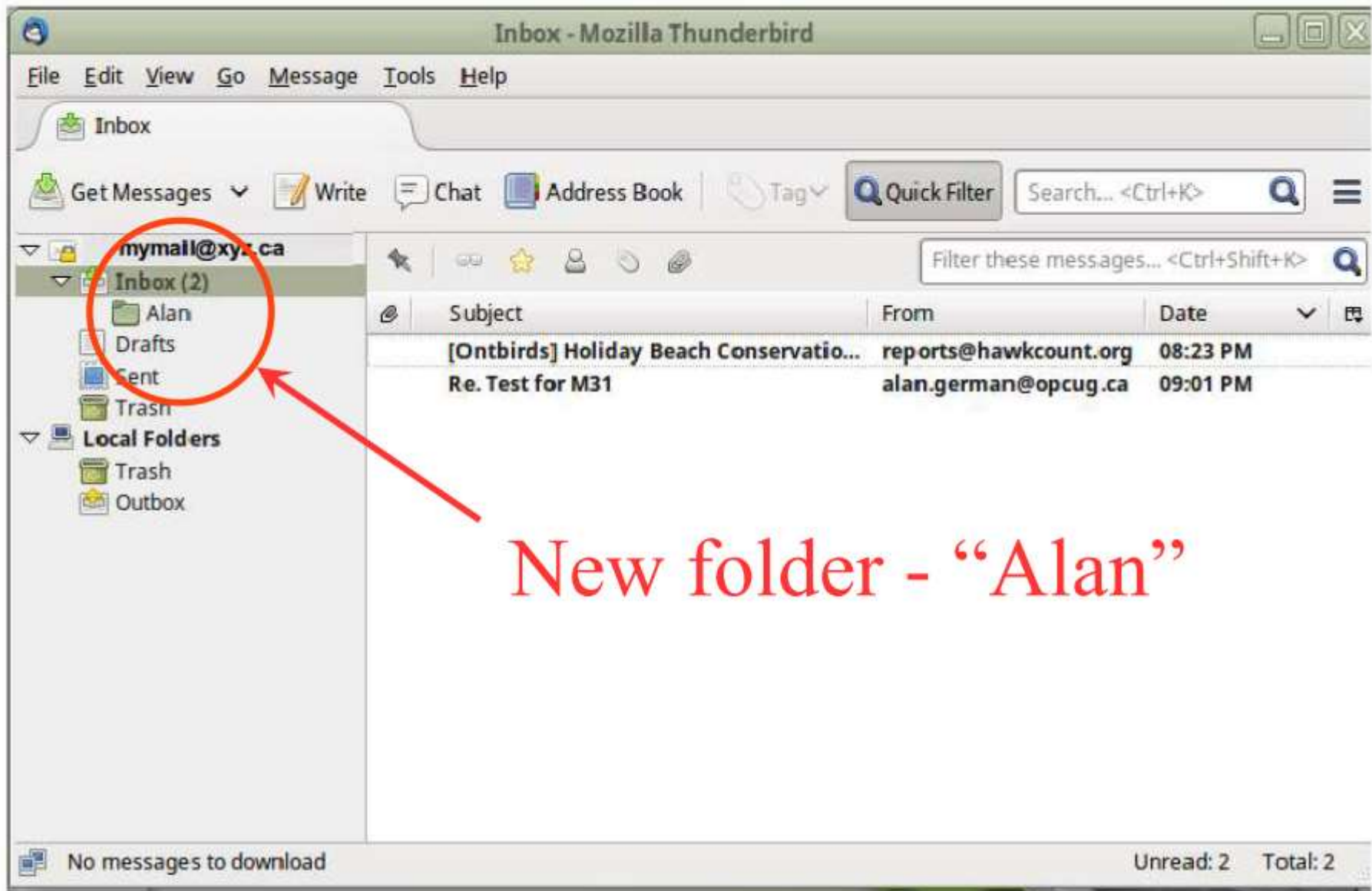


Basic mail folders –
Inbox, Sent, and Trash
(Drafts is “special purpose”)

Add a folder (File – New - Folder)

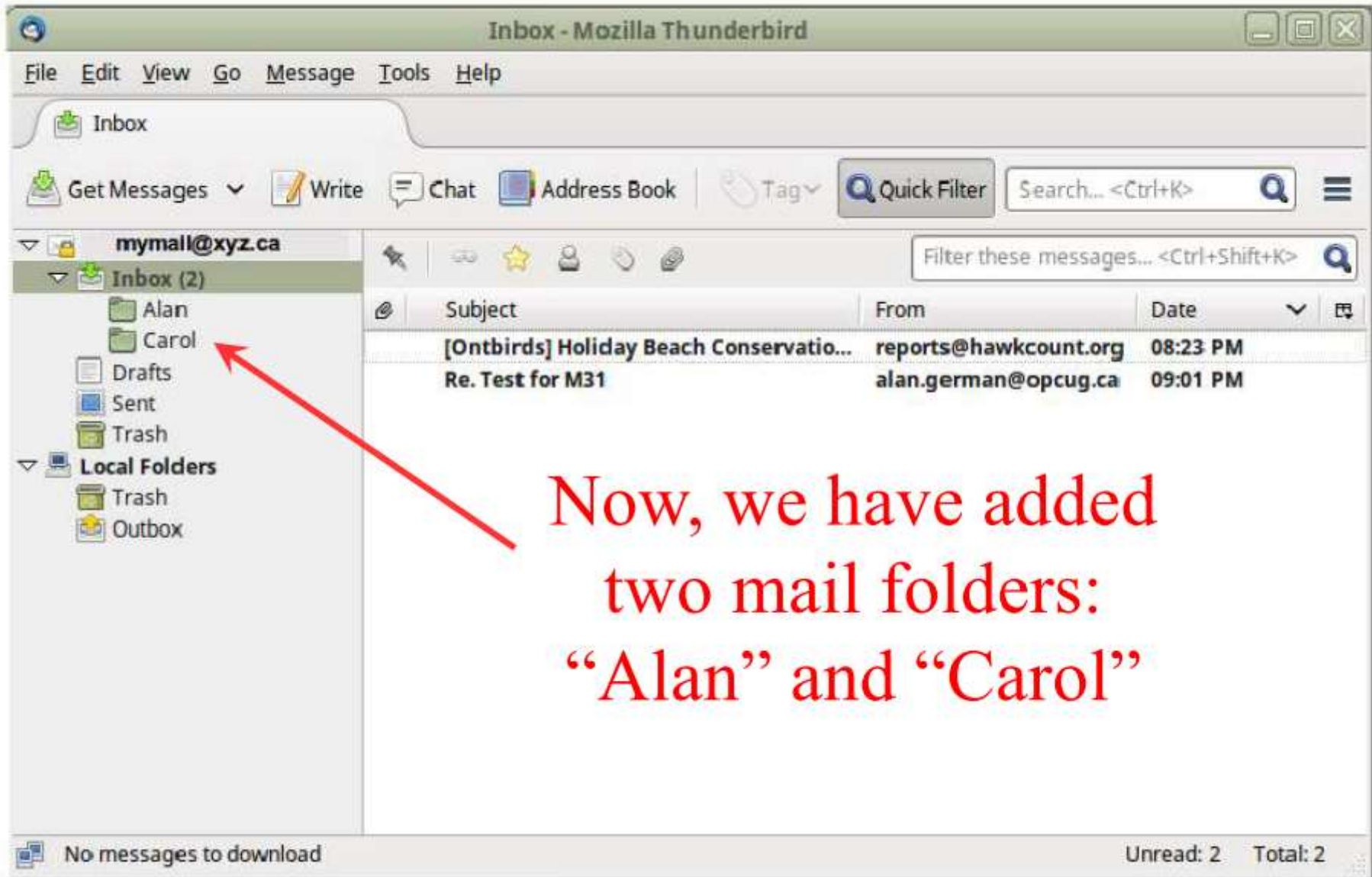






New folder - "Alan"

Add Another Folder



The screenshot shows the Mozilla Thunderbird interface. The left sidebar displays the folder structure for the account 'mymail@xyz.ca'. Under the 'Inbox (2)' folder, two new folders, 'Alan' and 'Carol', have been added. A red arrow points to these two folders. The main pane shows a list of messages with columns for Subject, From, and Date. The status bar at the bottom indicates 'No messages to download' and 'Unread: 2 Total: 2'.

File Edit View Go Message Tools Help

Inbox

Get Messages Write Chat Address Book Tag Quick Filter Search... <Ctrl+K>

mymail@xyz.ca

Inbox (2)

- Alan
- Carol
- Drafts
- Sent
- Trash

Local Folders

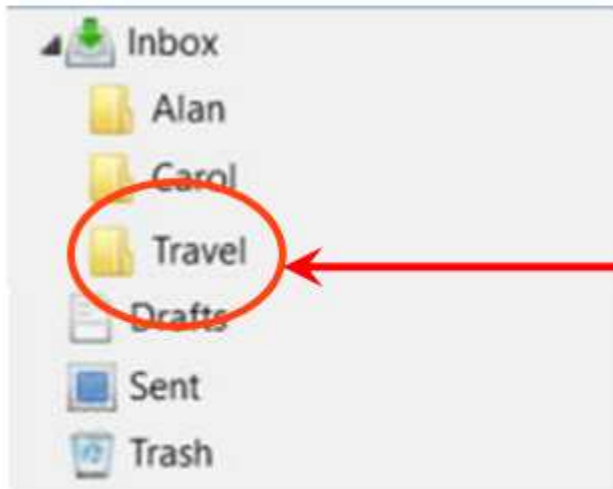
- Trash
- Outbox

Subject	From	Date
[Ontbirds] Holiday Beach Conservatio...	reports@hawkcount.org	08:23 PM
Re. Test for M31	alan.german@opcug.ca	09:01 PM

No messages to download Unread: 2 Total: 2

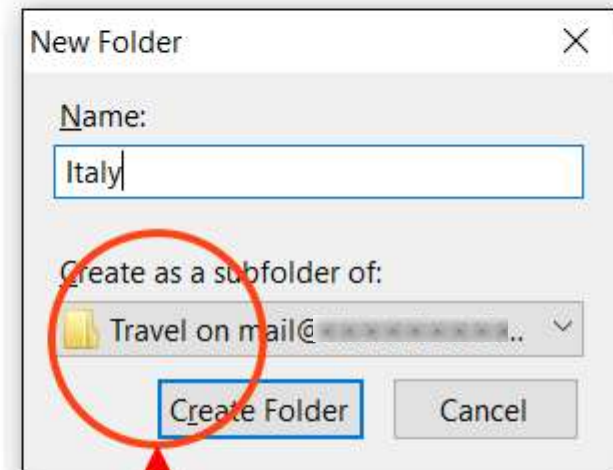
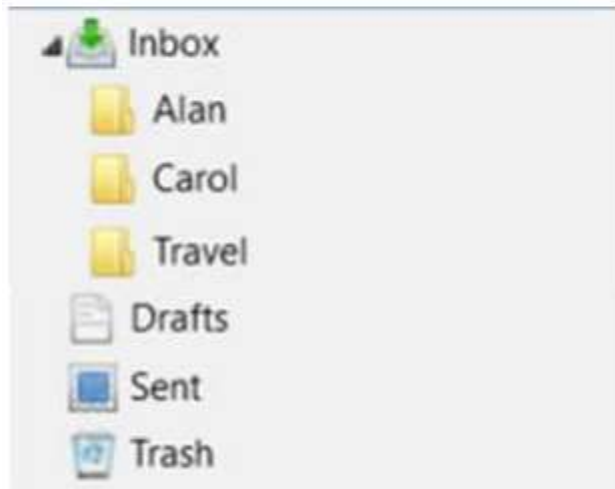
Now, we have added two mail folders: "Alan" and "Carol"

Multiple Folders and Sub-folders



Suppose we create a third folder named – “Travel”

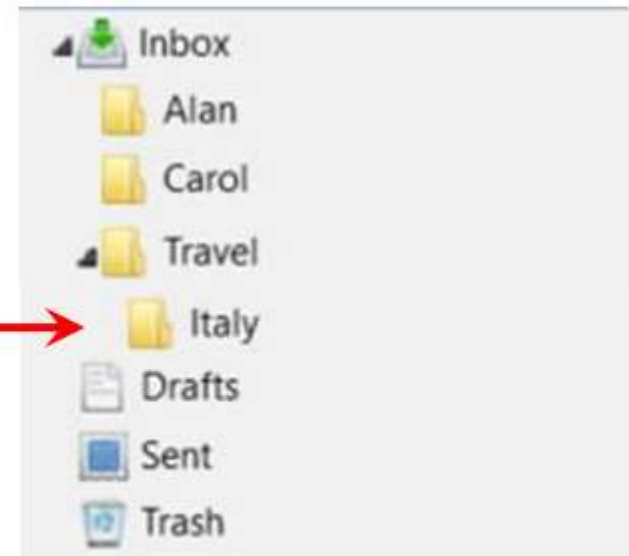
Create an “Italy” Sub-folder



Drill down to:
Mail account – Inbox – Travel
Make “Italy” a sub-folder

Multiple Folders and Sub-folders

“Italy” is now a sub-folder
of Inbox – Travel



Multiple Folders and Sub-folders



Create a Filter

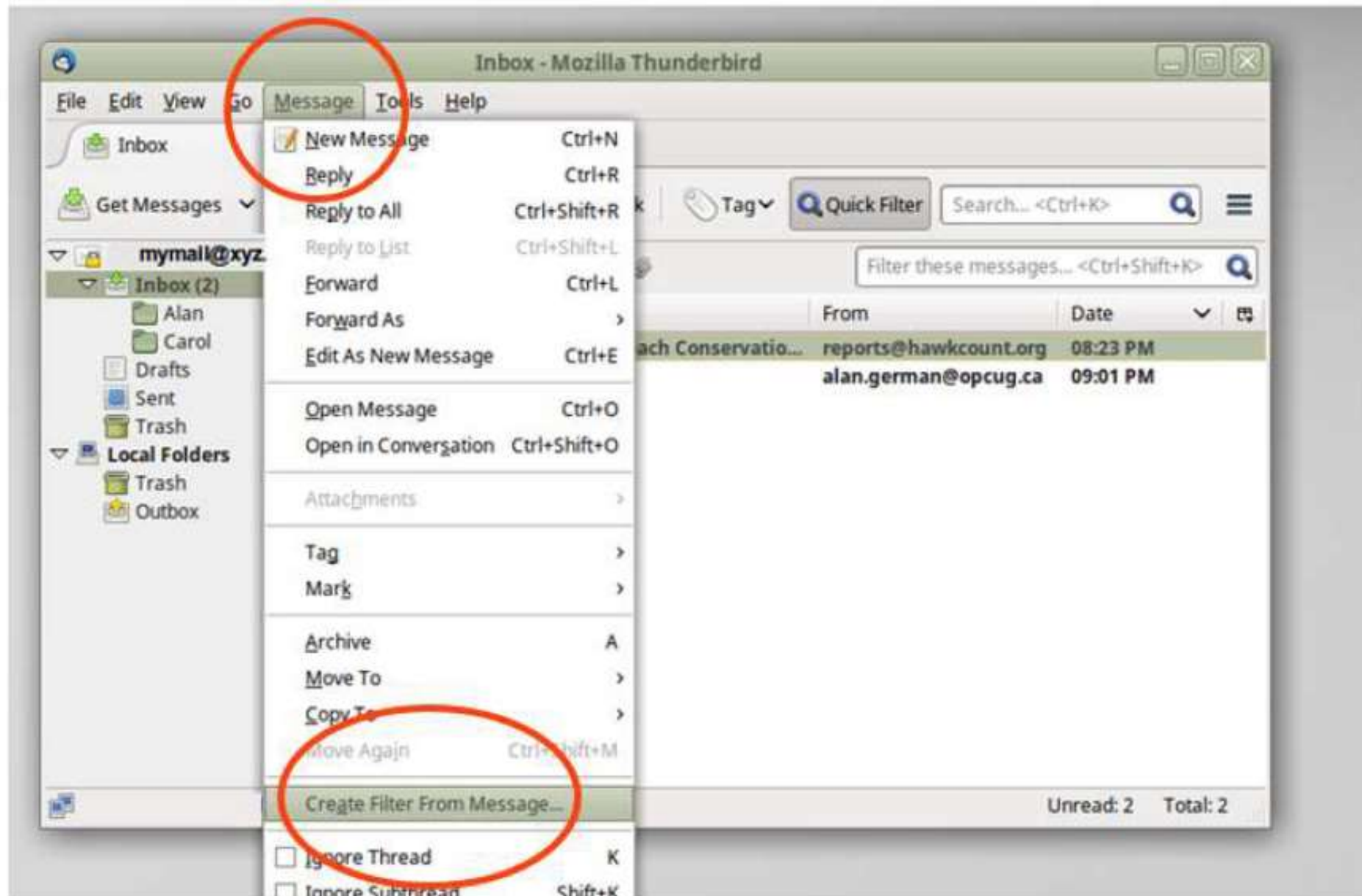
The screenshot shows the Mozilla Thunderbird email client interface. The window title is "Inbox - Mozilla Thunderbird". The menu bar includes File, Edit, View, Go, Message, Tools, and Help. The main toolbar contains icons for Get Messages, Write, Chat, Address Book, Tag, and Quick Filter, along with a search box labeled "Search... <Ctrl+K>".

The left sidebar shows the account "mymail@xyz.ca" with an "Inbox (2)" folder containing sub-folders for "Alan" and "Carol", and "Local Folders" containing "Trash" and "Outbox".

The message list is displayed with columns for Subject, From, and Date. Two messages are listed:

Subject	From	Date
[Ontbirds] Holiday Beach Conservatio...	reports@hawkcount.org	08:23 PM
Re. Test for M31	alan.german@opcug.ca	09:01 PM

A red arrow points to the "Re. Test for M31" message. Below the arrow, the text "Highlight a message" is written in red. At the bottom of the window, the status bar shows "No messages to download" on the left and "Unread: 2 Total: 2" on the right.



Filter Rules

Filter name:

Apply filter when:

- Manually Run
- Getting New Mail:
- Archiving
- After Sending

Match all of the following Match any of the following Match all messages

Perform these actions:

Filter Rules

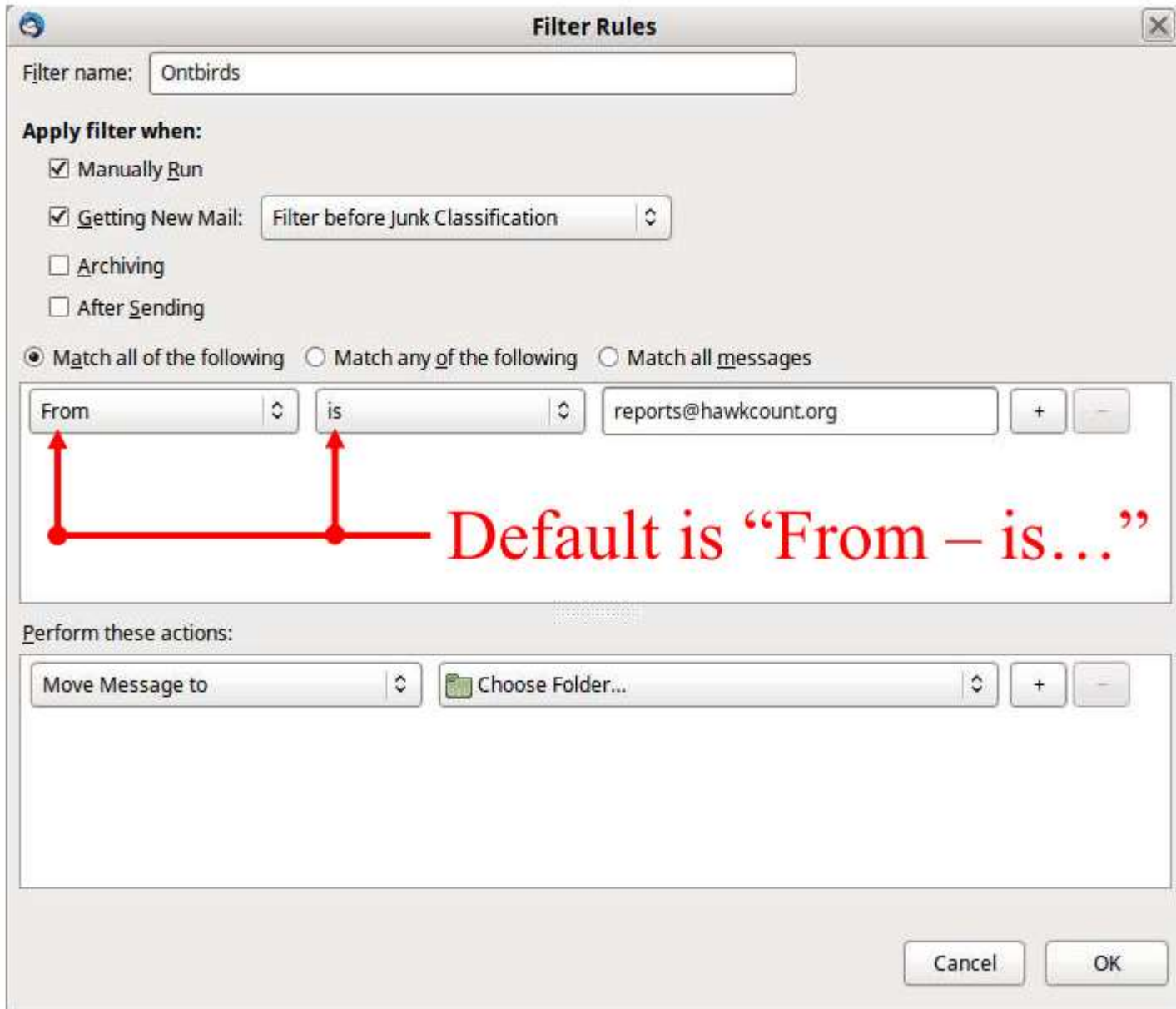
Filter name:

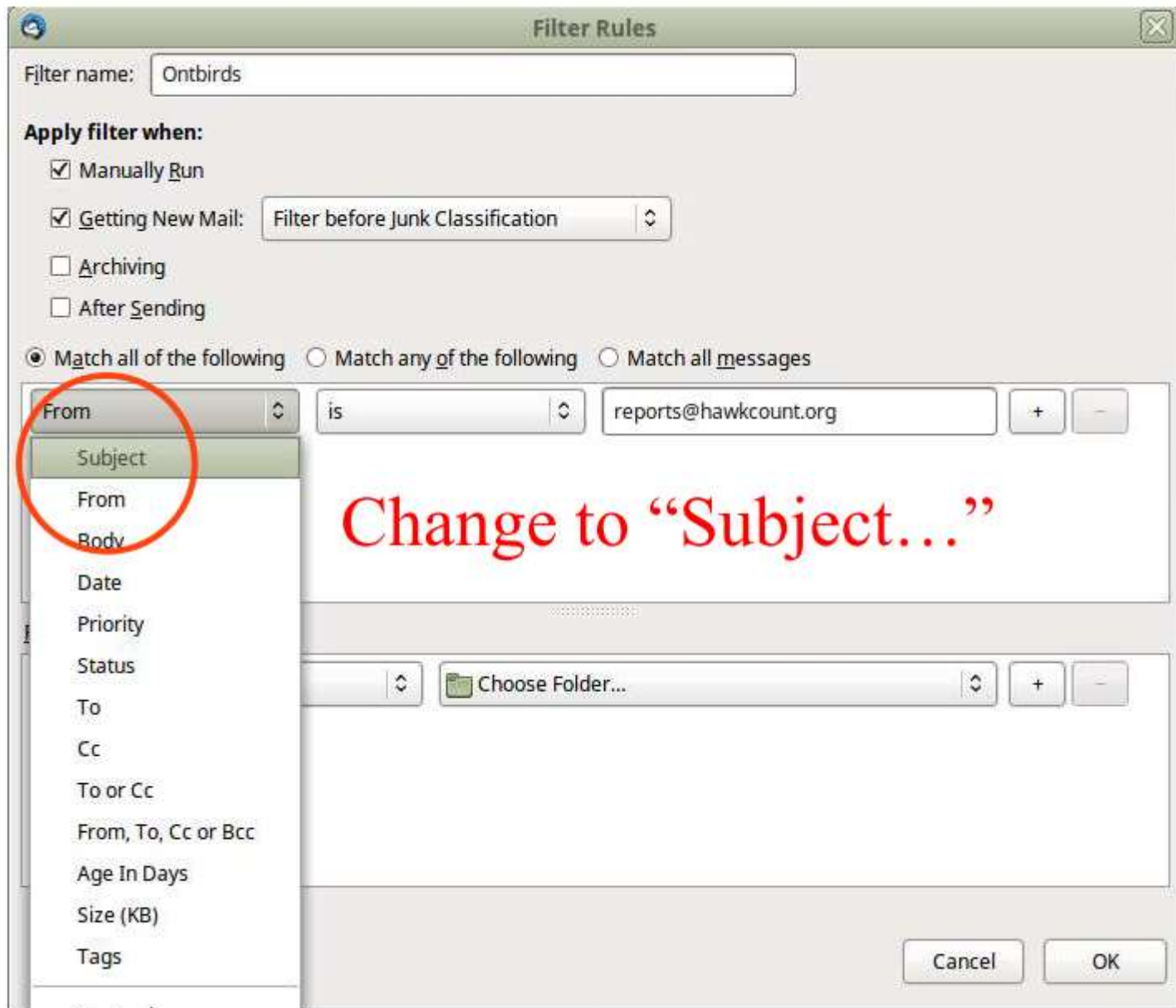
Apply filter when:

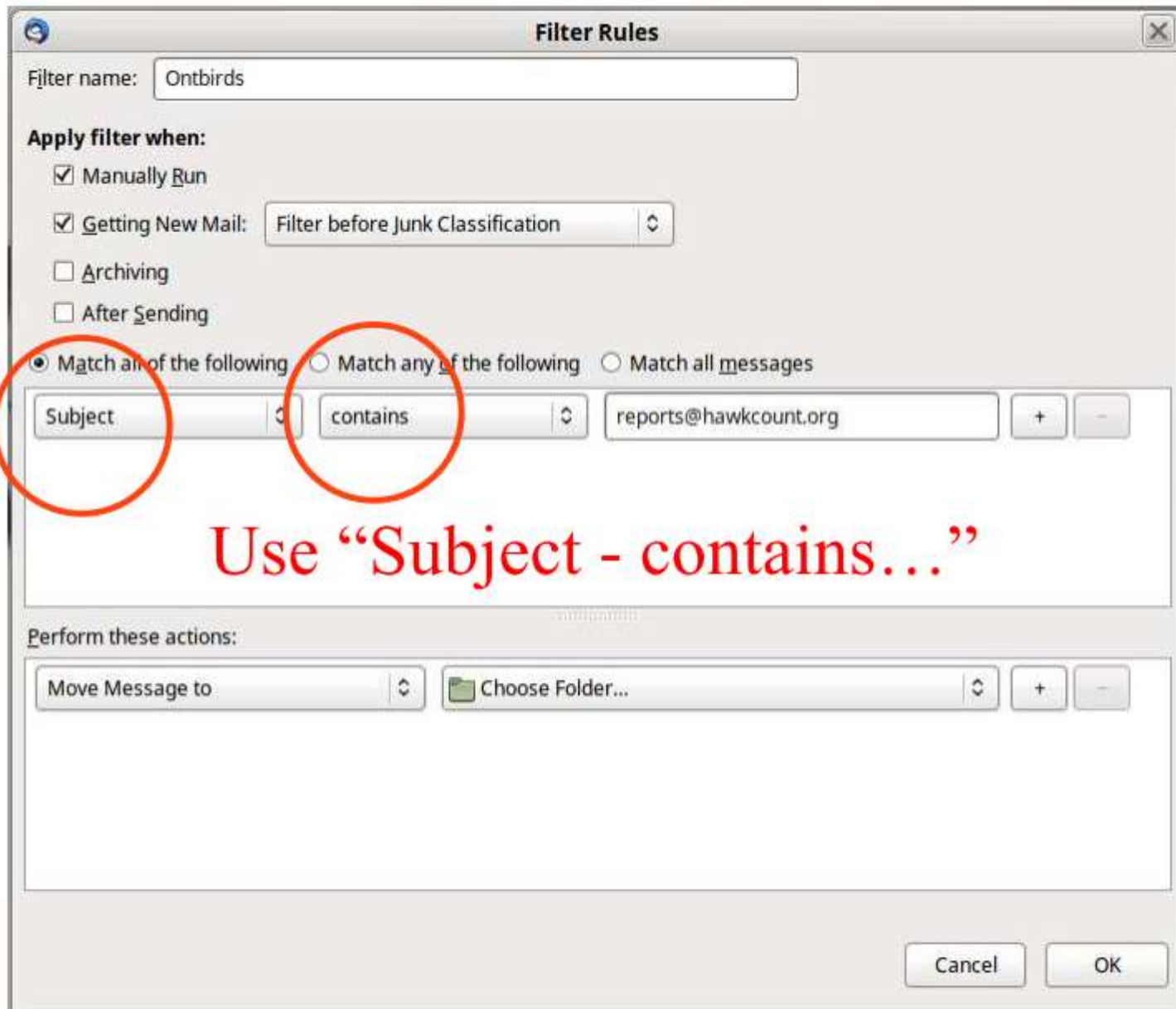
- Manually Run
- Getting New Mail:
- Archiving
- After Sending

Match all of the following Match any of the following Match all messages

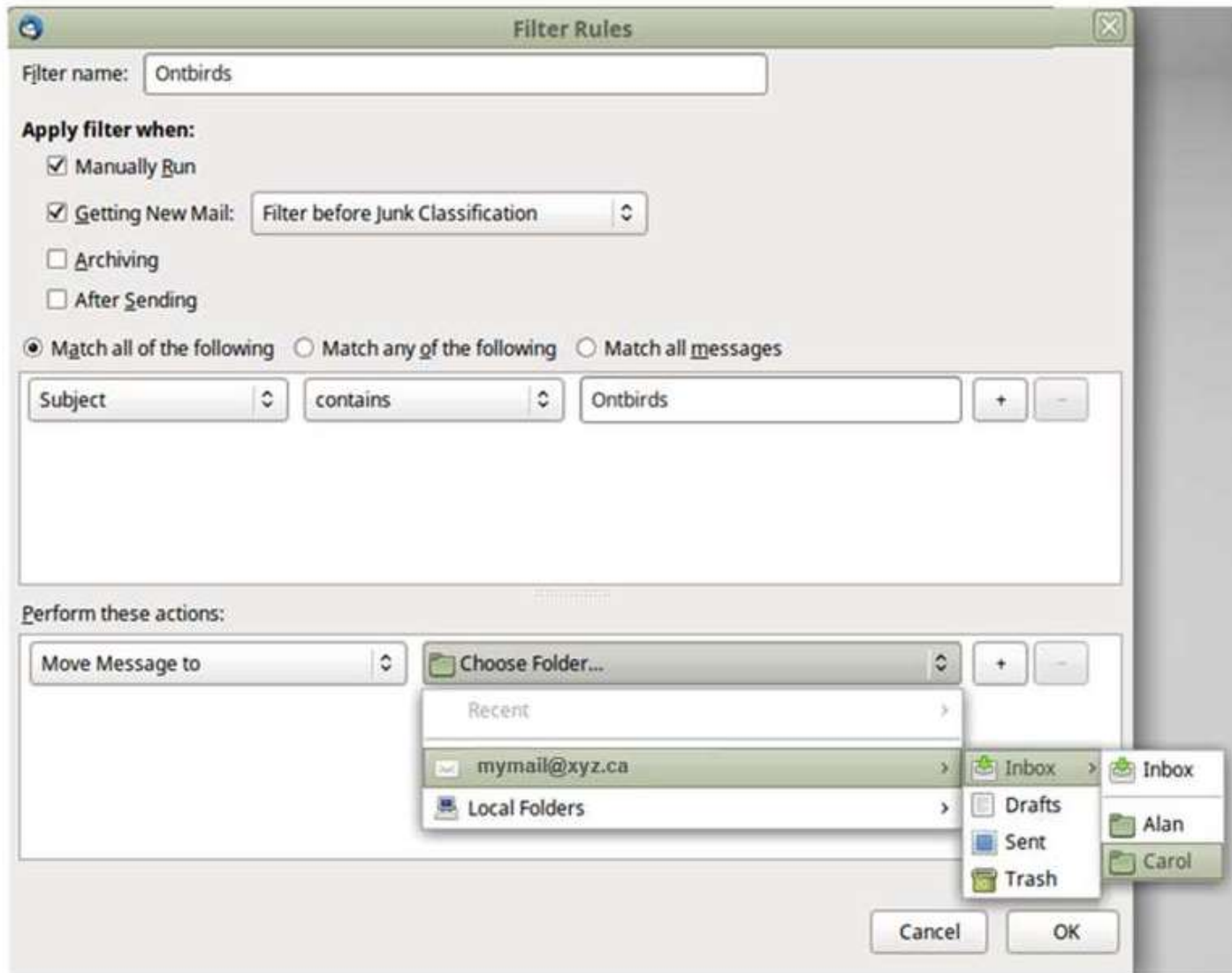
Perform these actions:







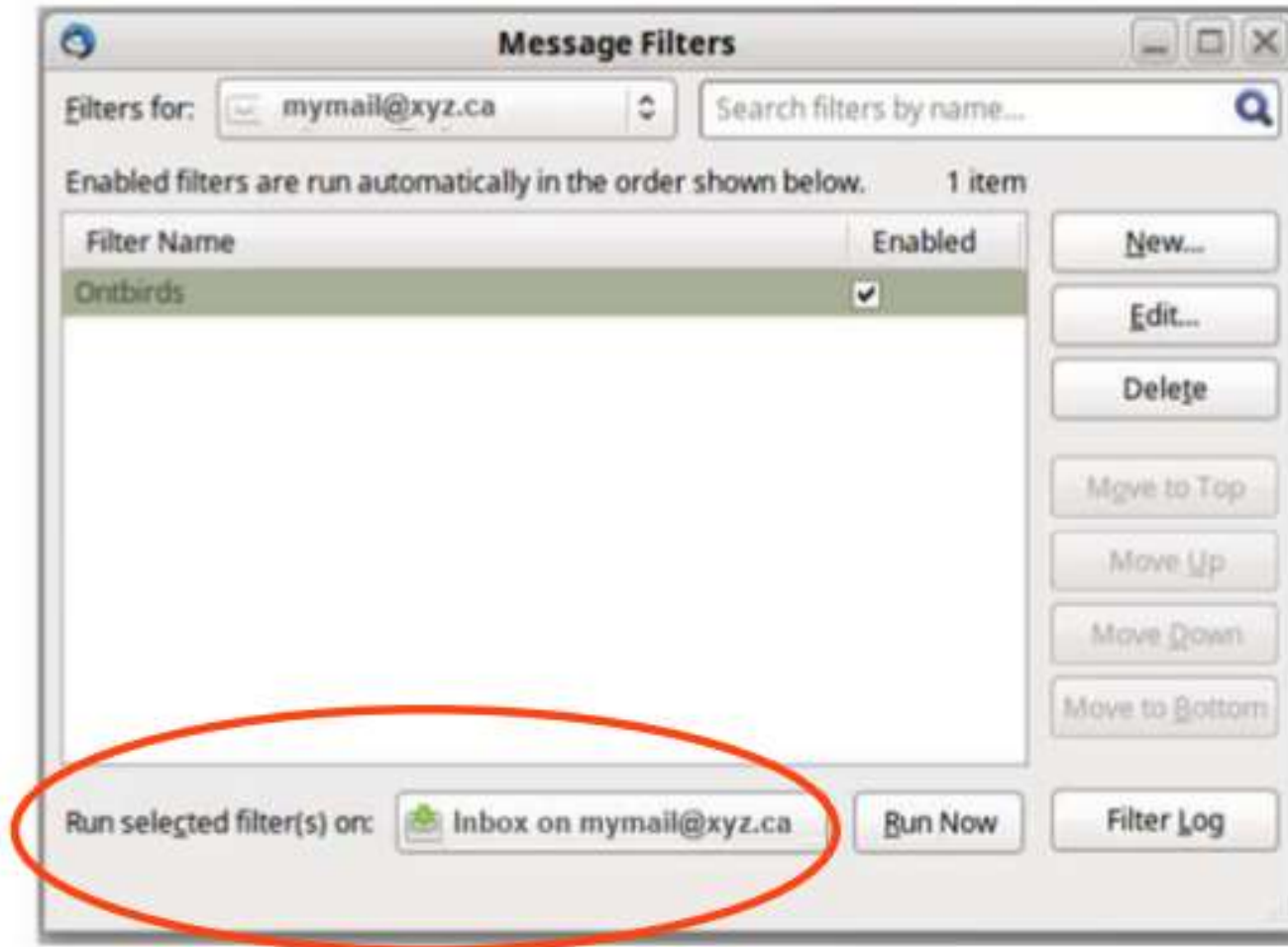


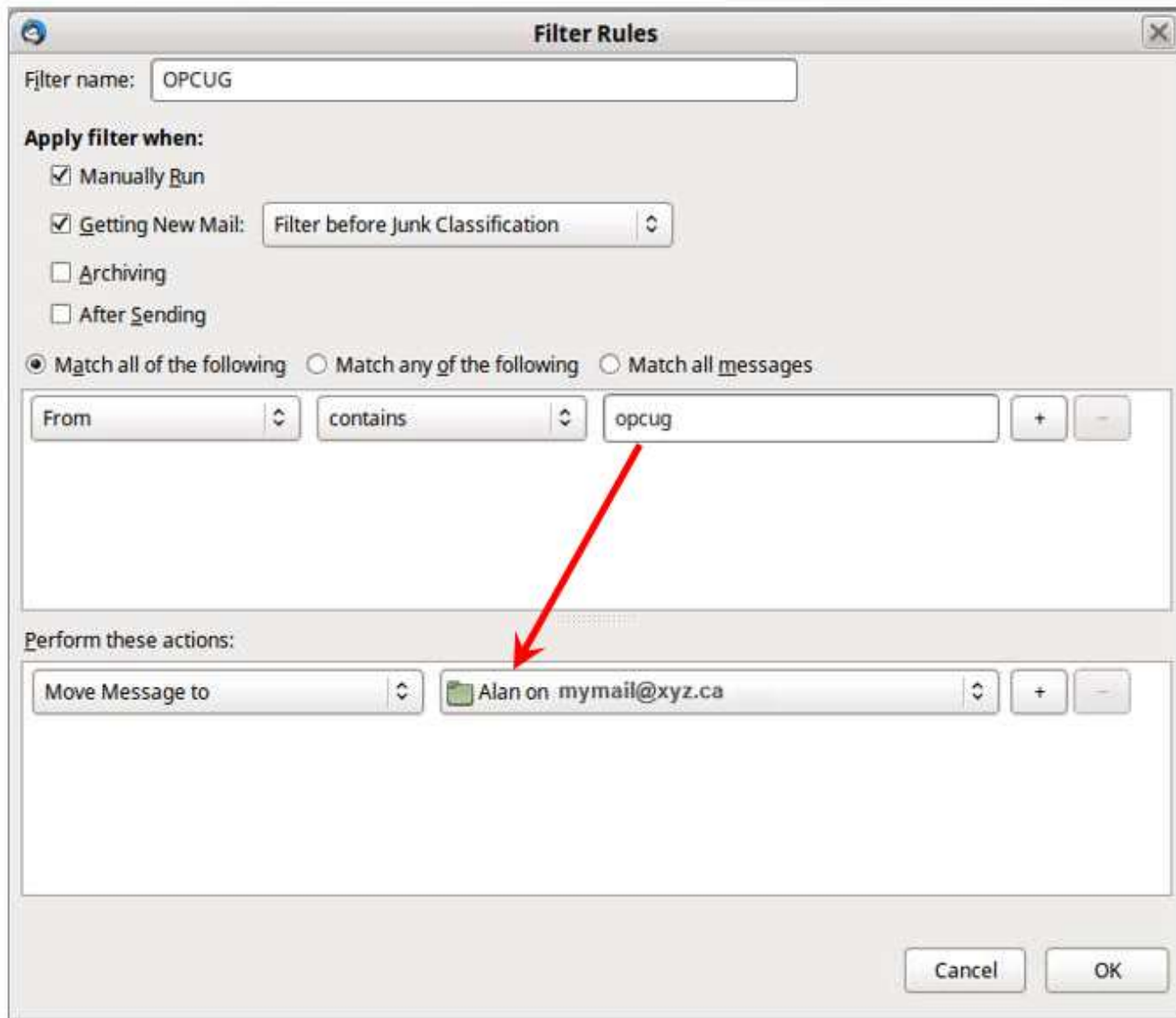


Choose the destination folder as "Inbox – Carol"



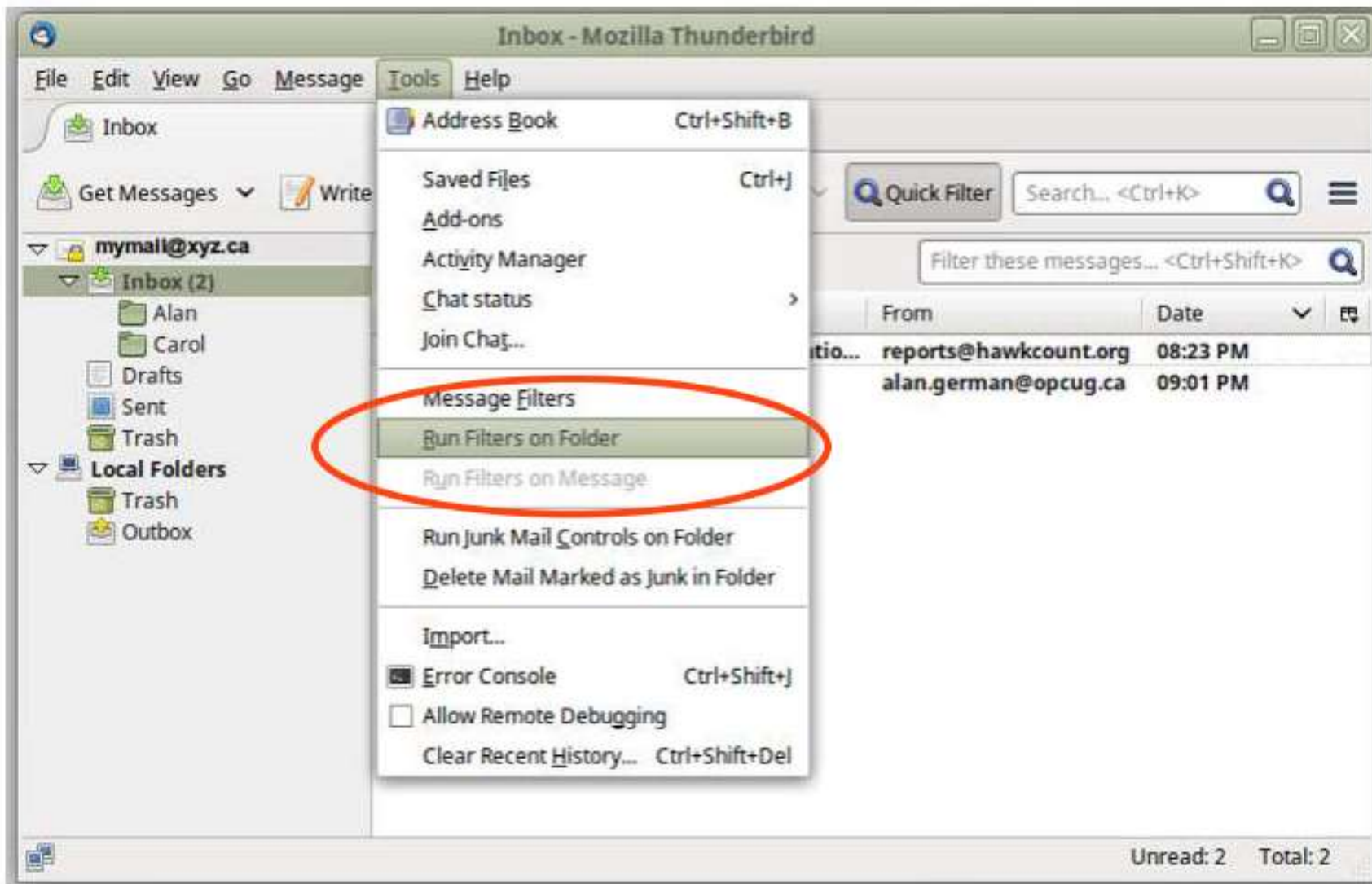
Message Filter

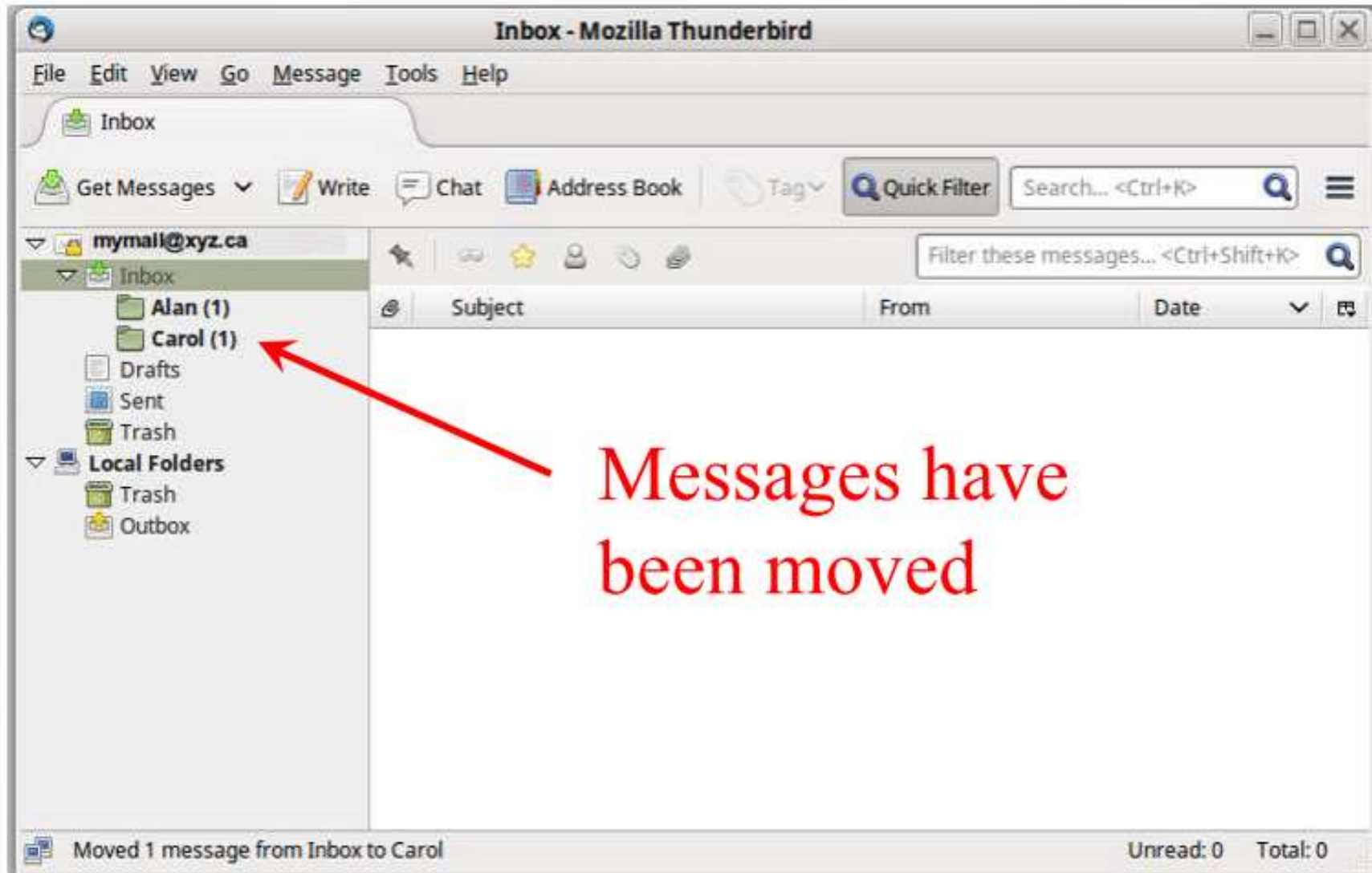




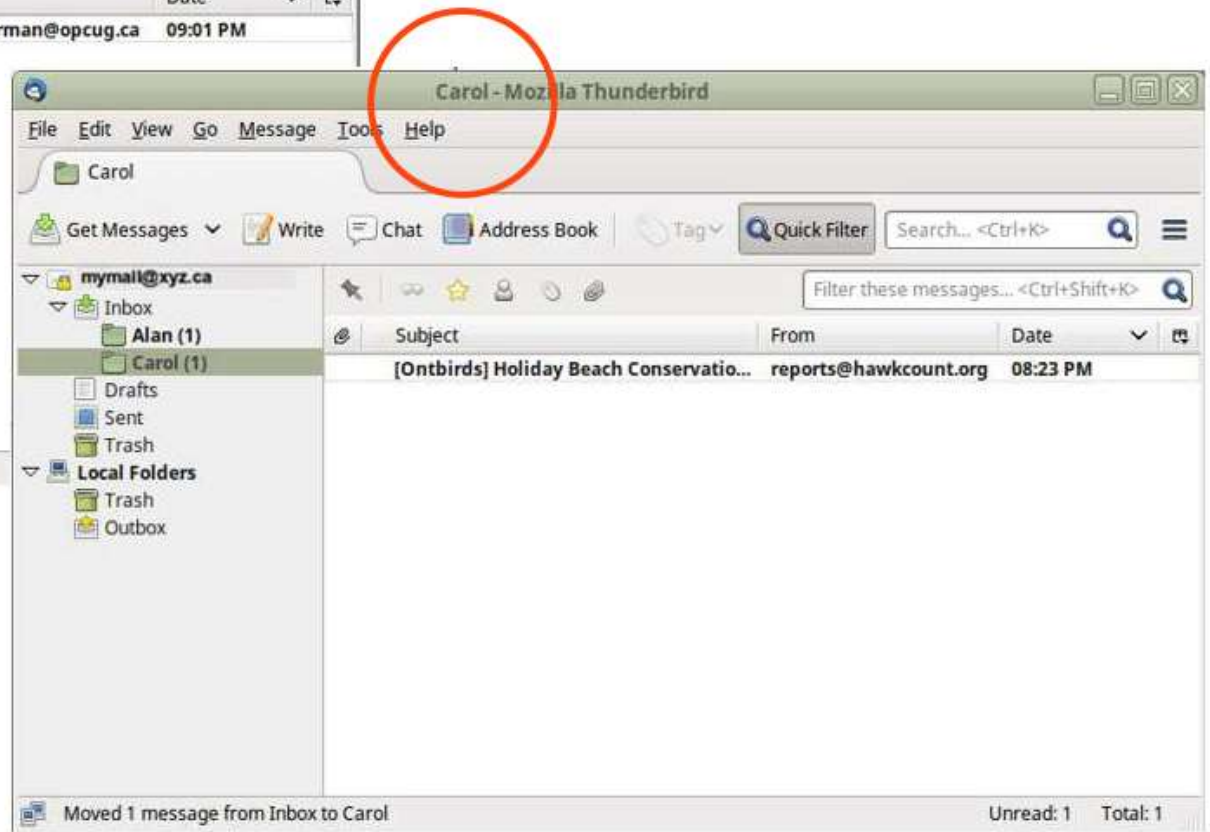
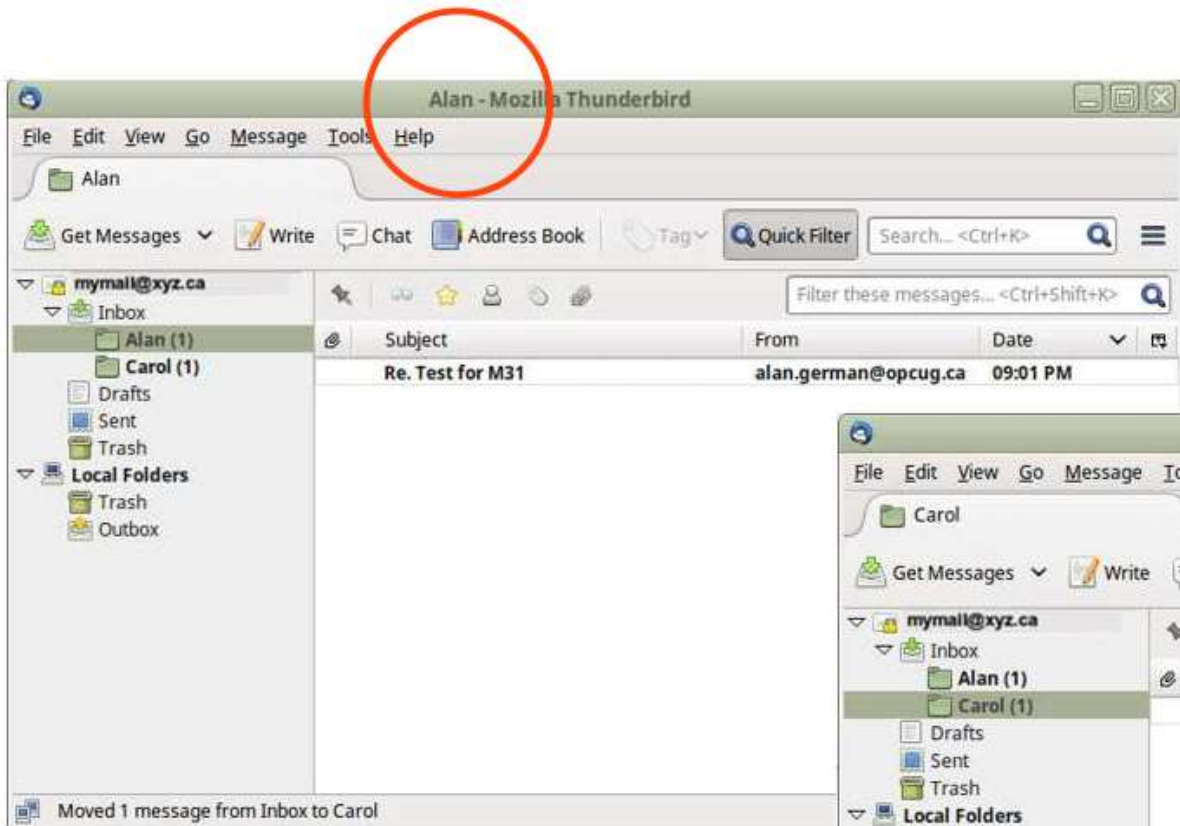
Add another filter



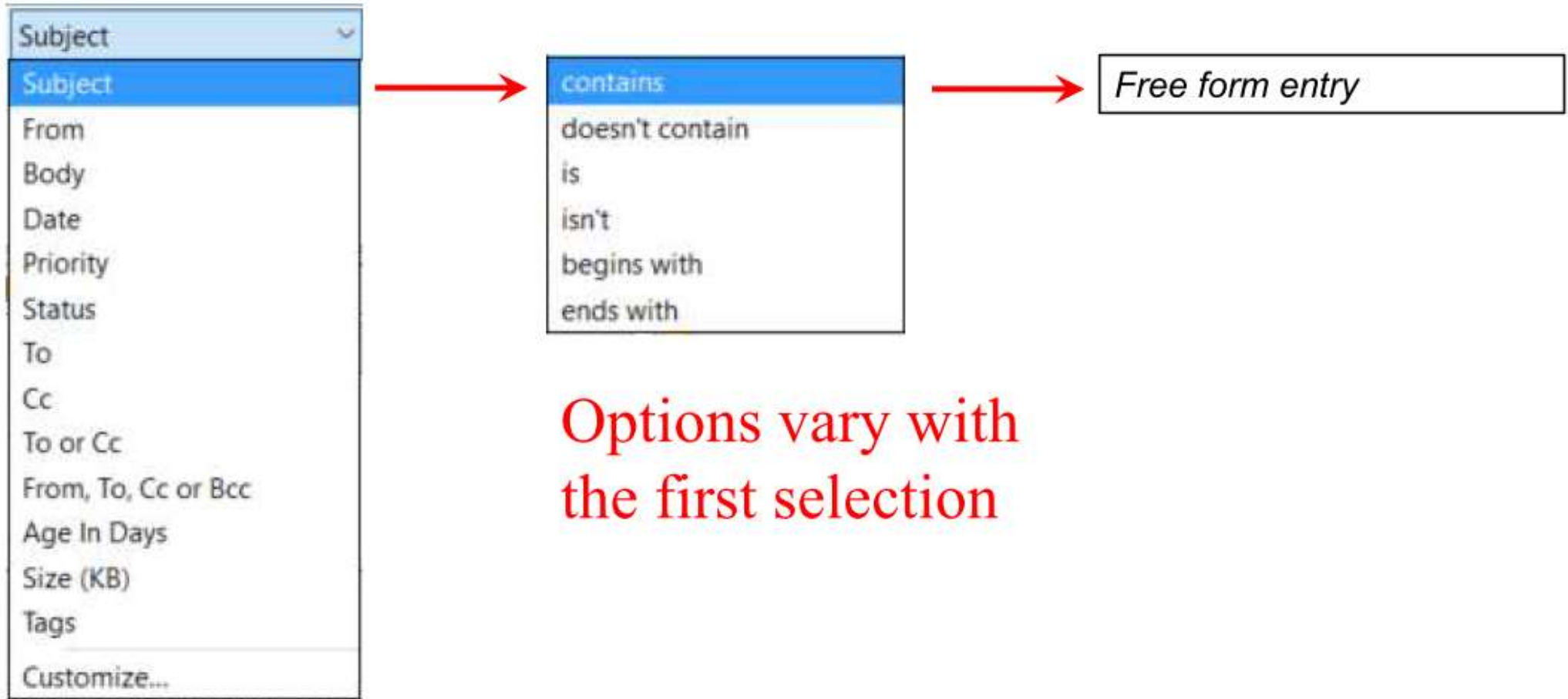




Messages have
been moved



Many Filter Rules



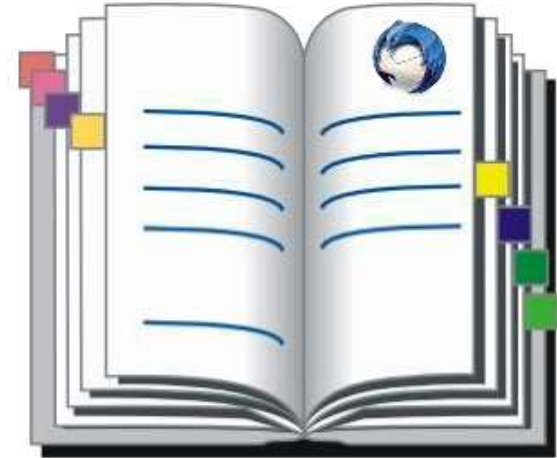
Transferring Address Books



Windows Live

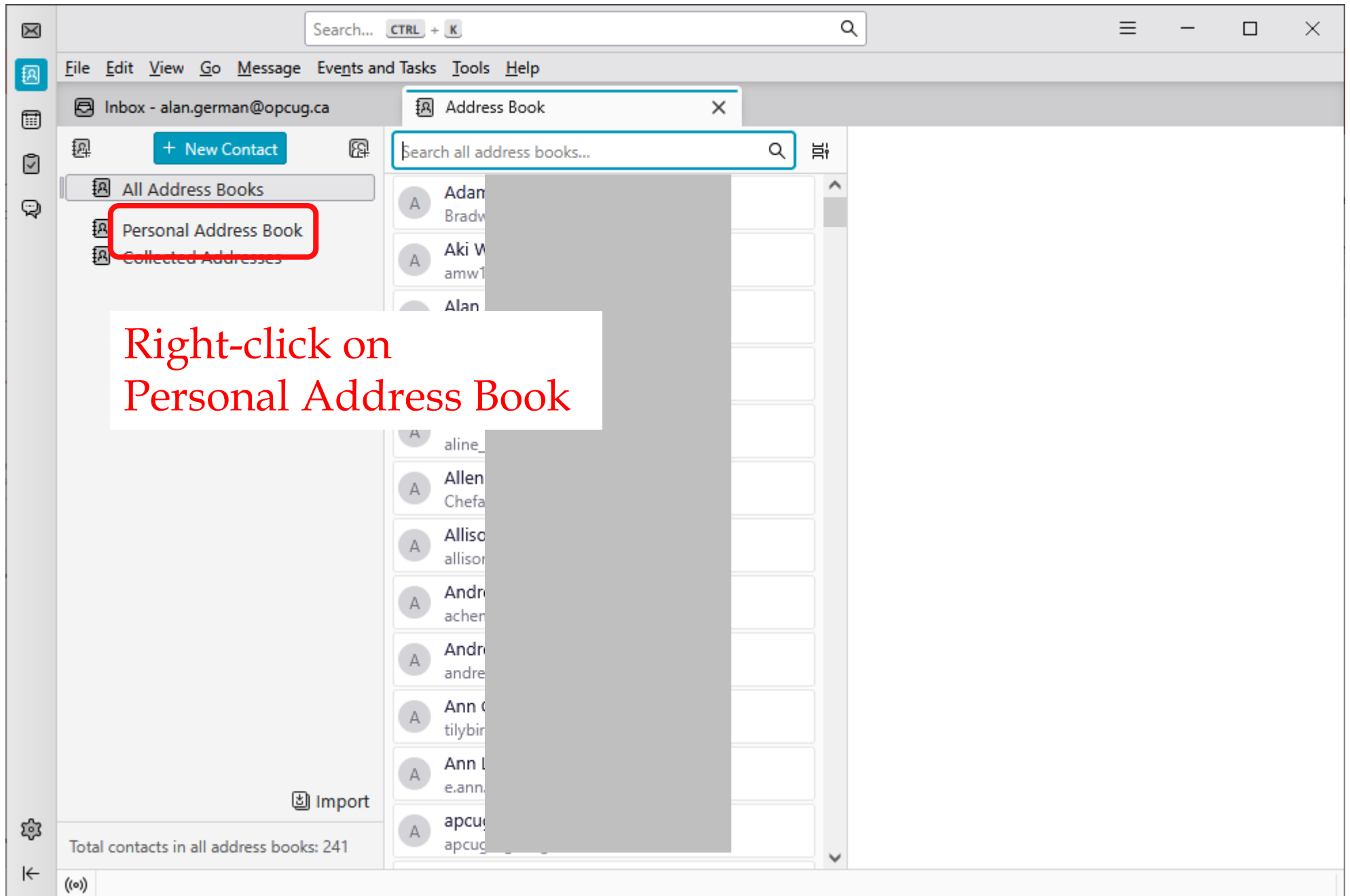


CSV file

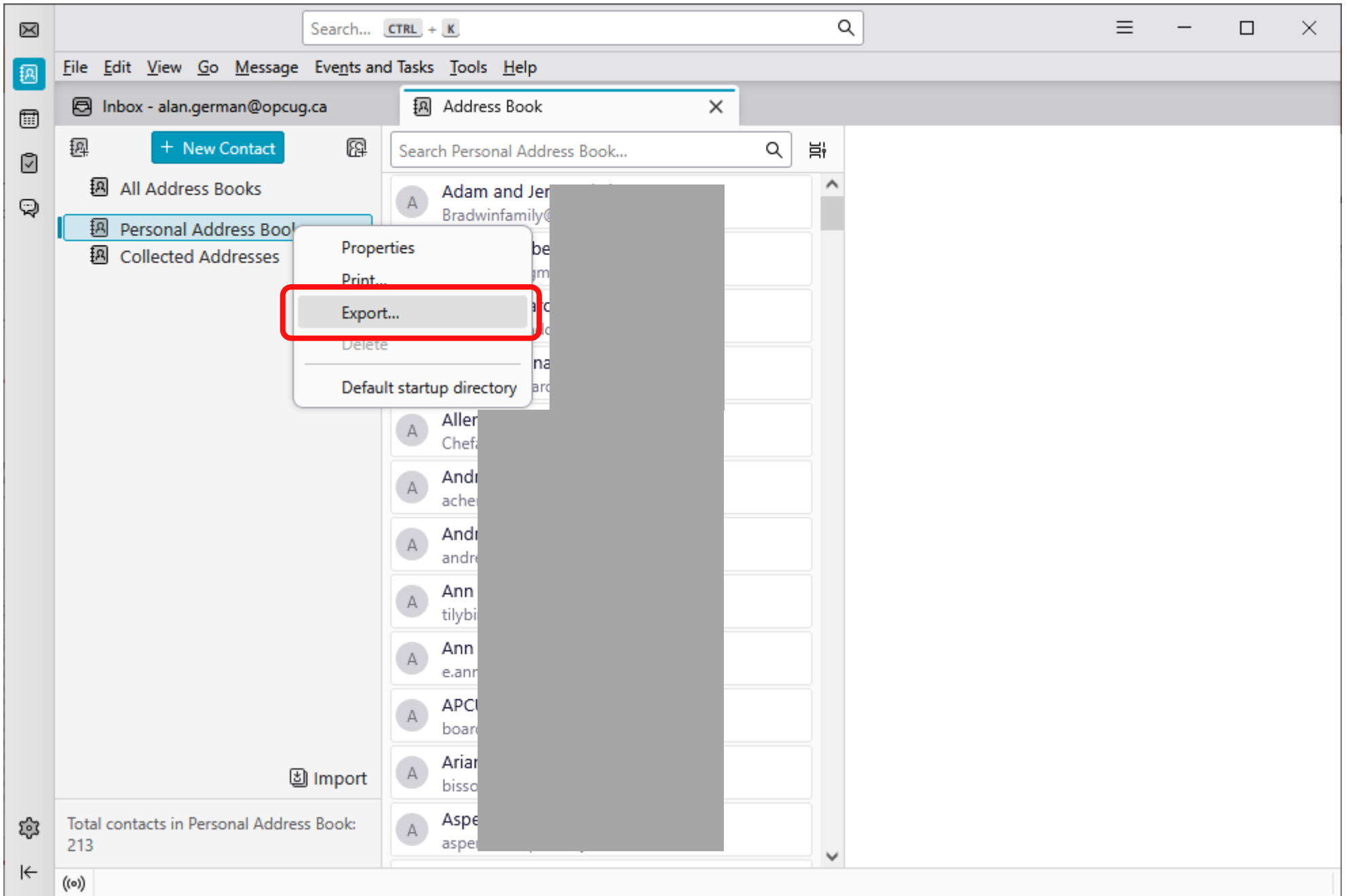


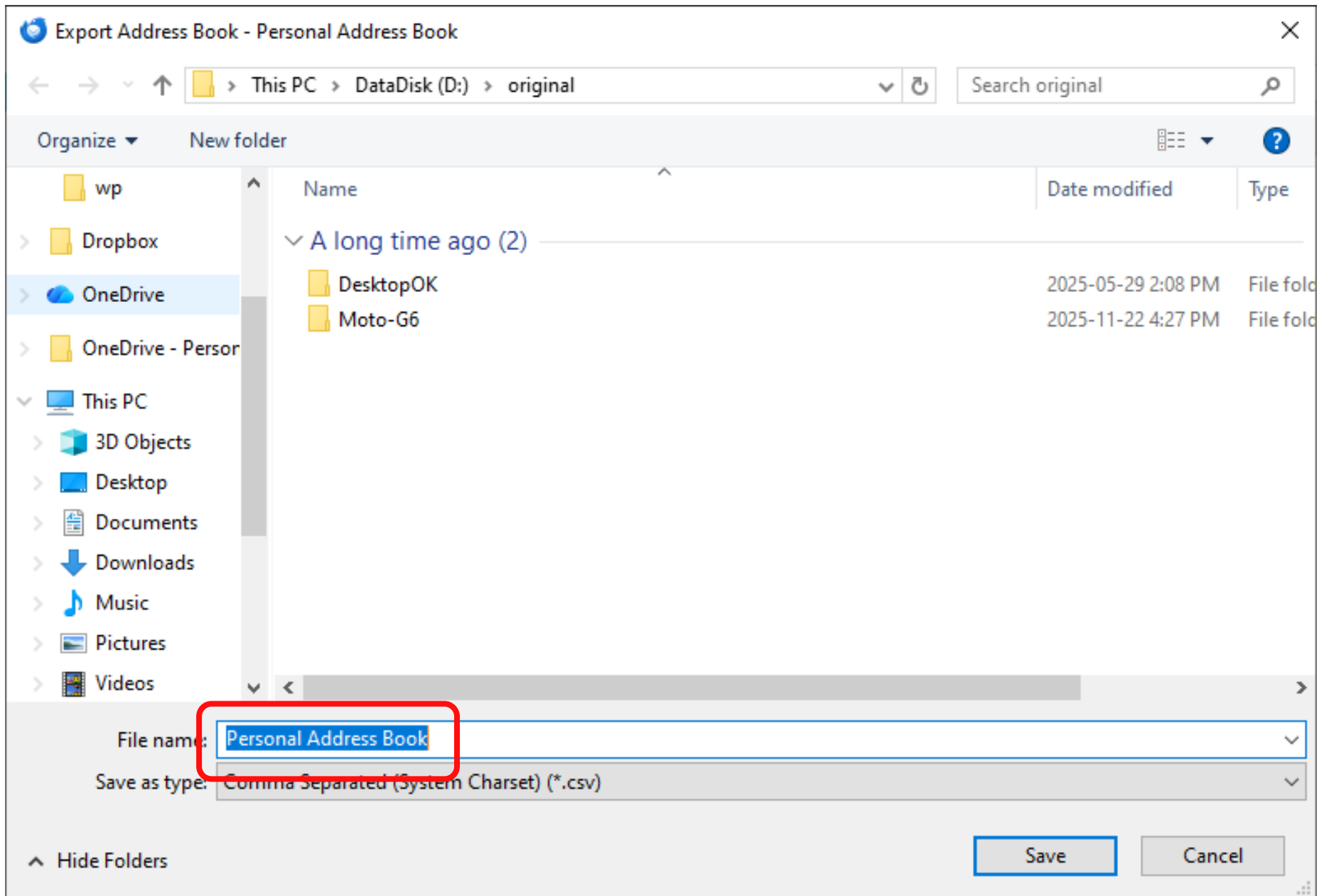
Thunderbird

Exporting or importing address books between E-mail systems (webmail and E-mail clients) is normally achieved using an intermediate file (LDIF, CSV, etc.)



Right-click on
Personal Address Book





Clipboard: Paste, Copy, Cut, Undo, Redo

Font: Calibri, 11, Bold, Italic, Underline, Text Color, Background Color

Alignment: Left, Center, Right, Justify, Indent, Decrease Indent, Increase Indent, Wrap Text, Merge & Center, Unmerge Cells

Number: General, Currency (\$), Percentage (%), Thousand Separator (.), Comma Separator (,)

Styles: Conditional Formatting, Format as Table, Cell Styles

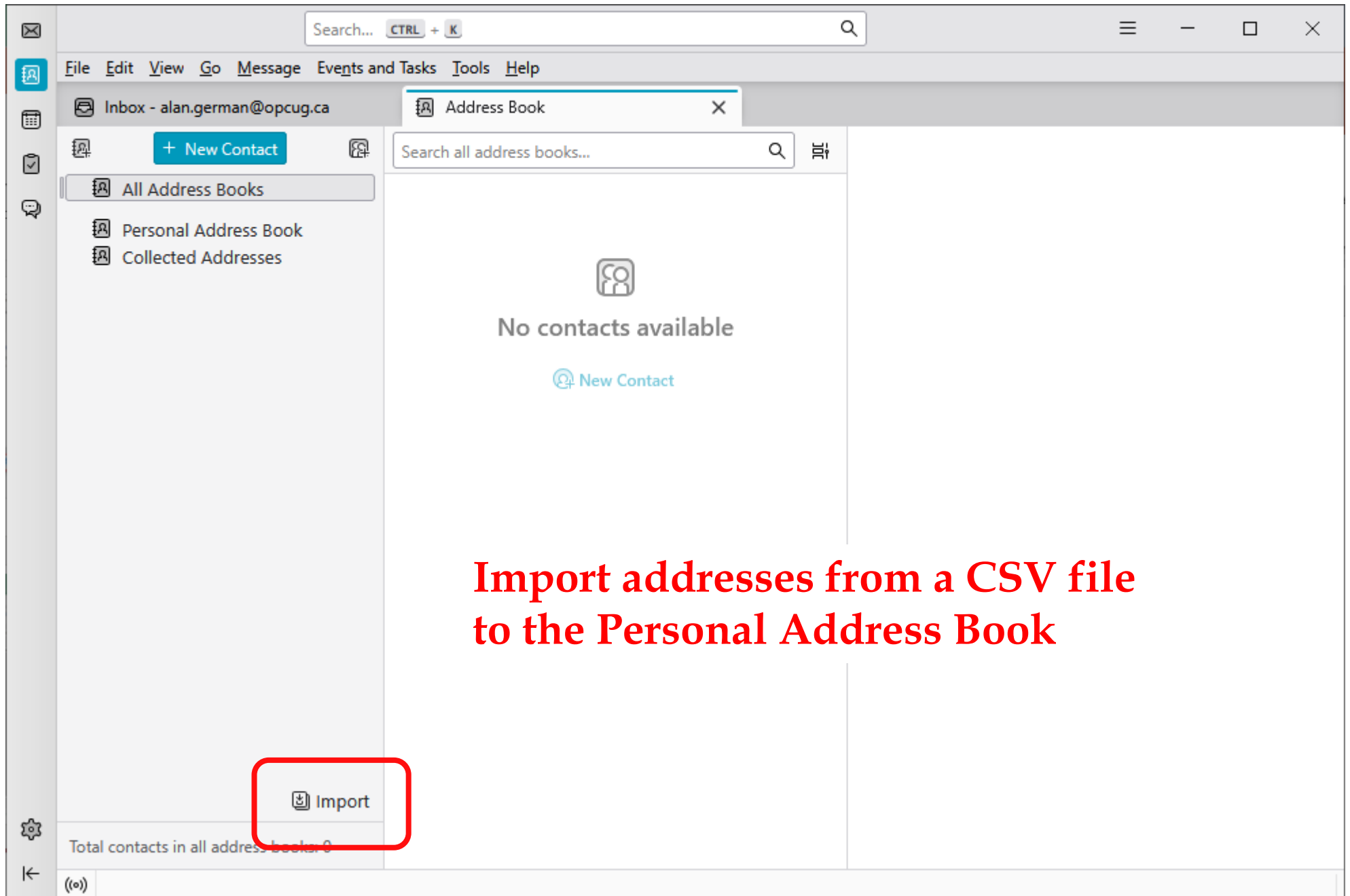
Cells: Insert, Delete, Format

Editing: Find, Undo, Redo

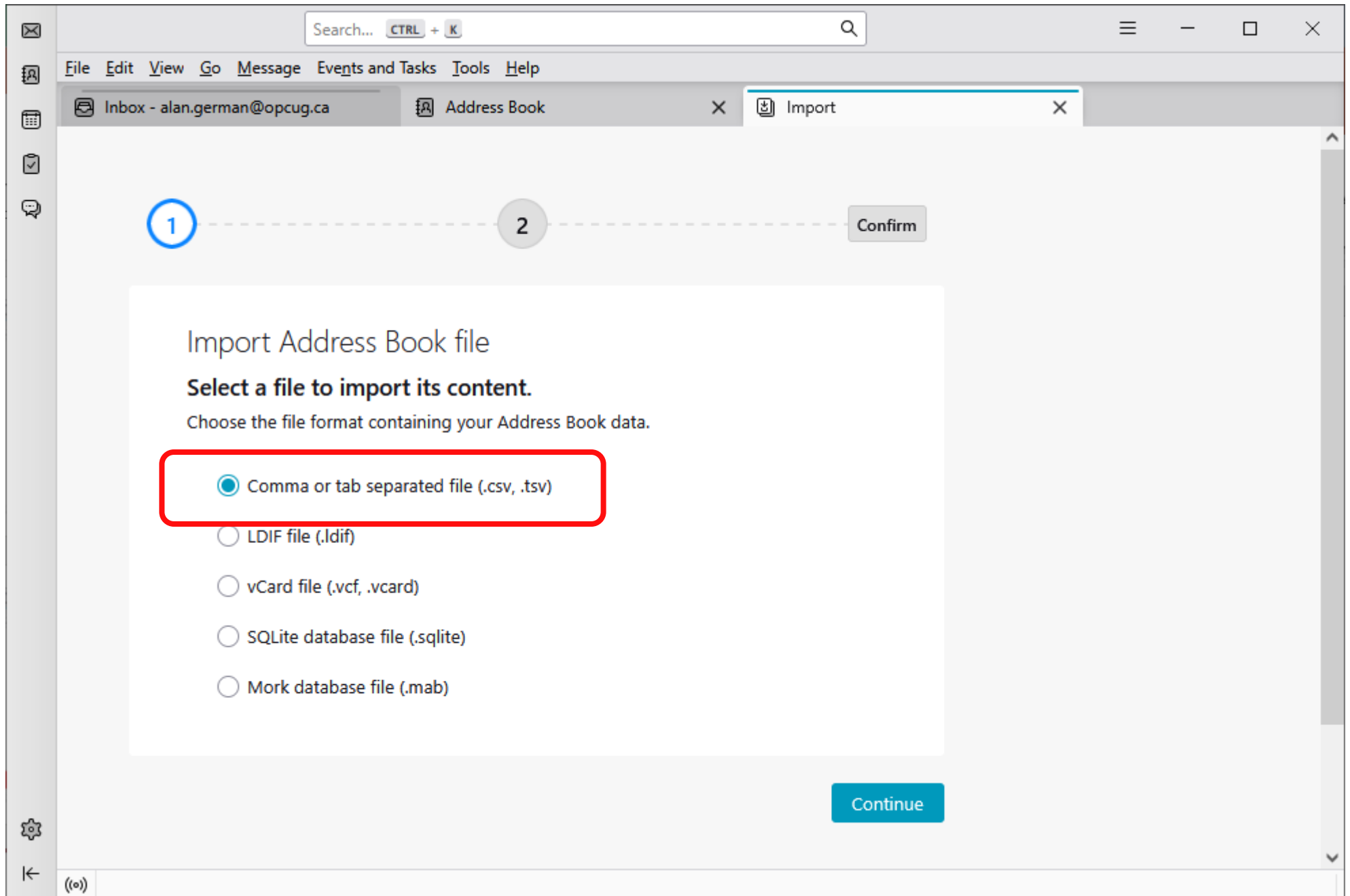
Add-ins: Add-ins

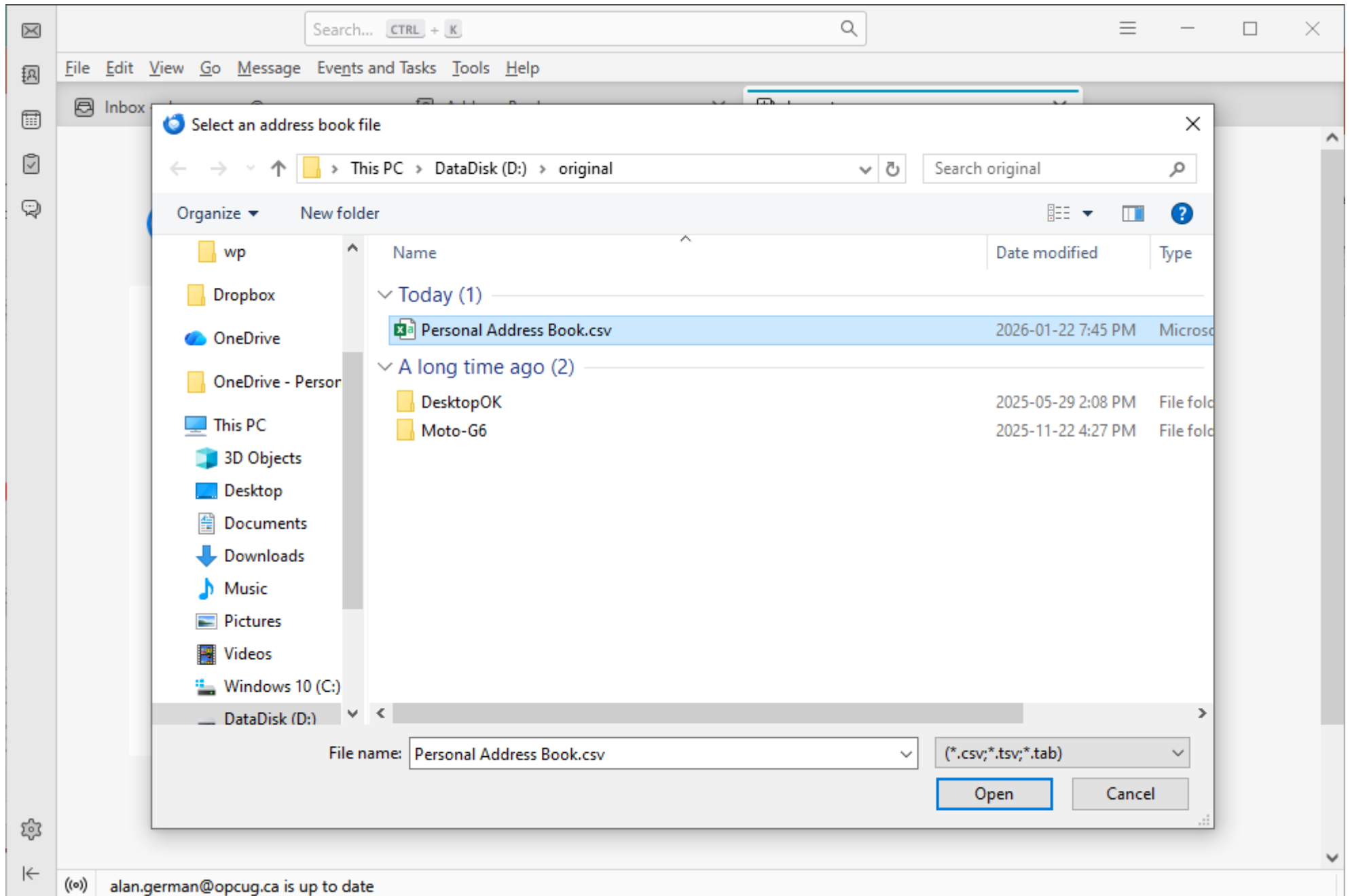
A1 First Name

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	First Name	Last Name	Display Name	Nickname	Primary Email	Secondary Email	Screen Name	Work Phone	Home Phone	Fax Number	Pager Number	Nur Mobile Number	Home Address	Home Address
2	Adam and Bra							com						
3	Aki	Wa												
4	Alan and Car													
5	Aline	Ch												
6	Allen	Fra												
7	Andrew	Ch												
8	Andrew	Ho												
9	Ann	Gib												
10	APCUG	BO												
11	Ariane	Bis												
12	Barb	Gib												
13	Barb and f	Co												
14	Barbara	Ch												
15	Barbara	Wi												
16	Beacon Hi	Cen						tre.com						
17	Bella	Bo												
18	Bernie	Lac												
19	Bev	Mc												
20	Bev	Sc												
21	Bill	Jan												
22	Billy	Asp												
23	Bird Acad	Co												



**Import addresses from a CSV file
to the Personal Address Book**





Search... CTRL + K

File Edit View Go Message Events and Tasks Tools Help

Inbox - alan.german@opcug.ca Address Book Import

1 ————— 2 —----- Confirm

Import Address Book file

Select where to import the chosen data

Source file: D:\original\Personal Address Book.csv

- Personal Address Book
- Collected Addresses
- Create a new directory called **"Personal Address Book"**

< Back Continue

Need help?
[Import documentation](#) - [Support forum](#)

alan.german@opcug.ca is up to date

Search... CTRL + K

File Edit View Go Message Events and Tasks Tools Help

Inbox - alan.german@opcug.ca Address Book Import

1 2 Confirm

Import Address Book file

Import the chosen data into the "Personal Address Book" directory

Source file: D:\original\Personal Address Book.csv

Data to be imported

- ✓ Address Books

Start Import

< Back

Need help?
[Import documentation](#) - [Support forum](#)

alan.german@opcug.ca is up to date

Search... CTRL + K

File Edit View Go Message Events and Tasks Tools Help

Inbox - alan.german@opcug.ca Address Book Import

1 2 Confirm

Import Address Book file

Import the chosen data into the "Personal Address Book" directory

Source file: D:\original\Personal Address Book.csv

Data to be imported

- ✓ Address Books

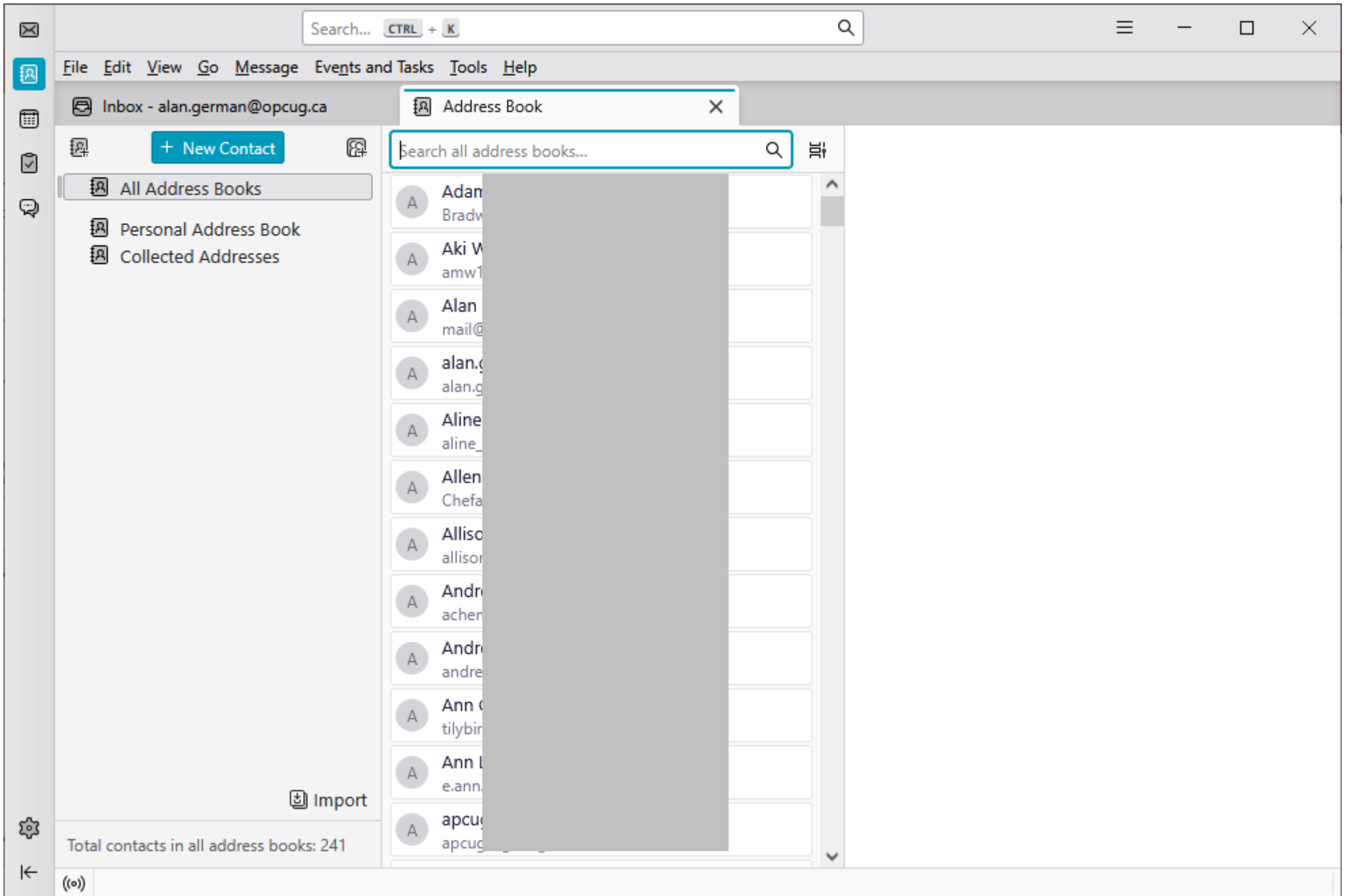
Complete.

Finish

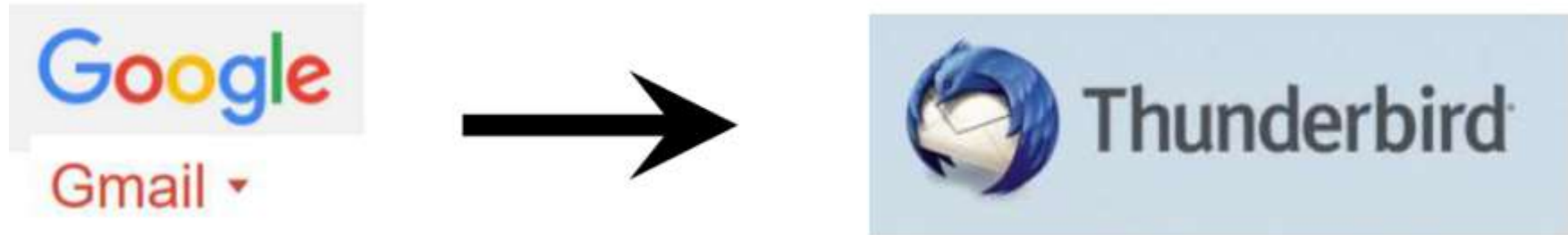
[Restart Import Tool](#)

< Back

alan.german@opcug.ca is up to date



Transfer Gmail to Thunderbird



- Set up a Thunderbird account for Gmail
- Thunderbird will connect to Gmail's server
- All of the Gmail folders (IMAP) and messages will be downloaded to local storage
- By default, the messages/folders will stay synchronized with those on Gmail

Generic Message Transfer

- Switching ISP's
- Use an IMAP client to download all mail from the old ISP's mail server
- Save messages to a local folder
- Tell people your new email address
- Keep the local folder for the old mail
- Move (or copy to be safe) mail to the new ISP's mail server using IMAP
- Cancel the old account
- Seriously consider switching to a non-ISP, portable E-mail address
(The ISP probably got you into a mess in the first place!)

Mail Folders

The location where mail folders are stored can be somewhat obtuse.

For example, by default, Thunderbird uses something like:

```
C:\Users\toaster\AppData\Roaming\Thunderbird\Profiles\1trm39aa.default\Mail\pop.primus.ca
```

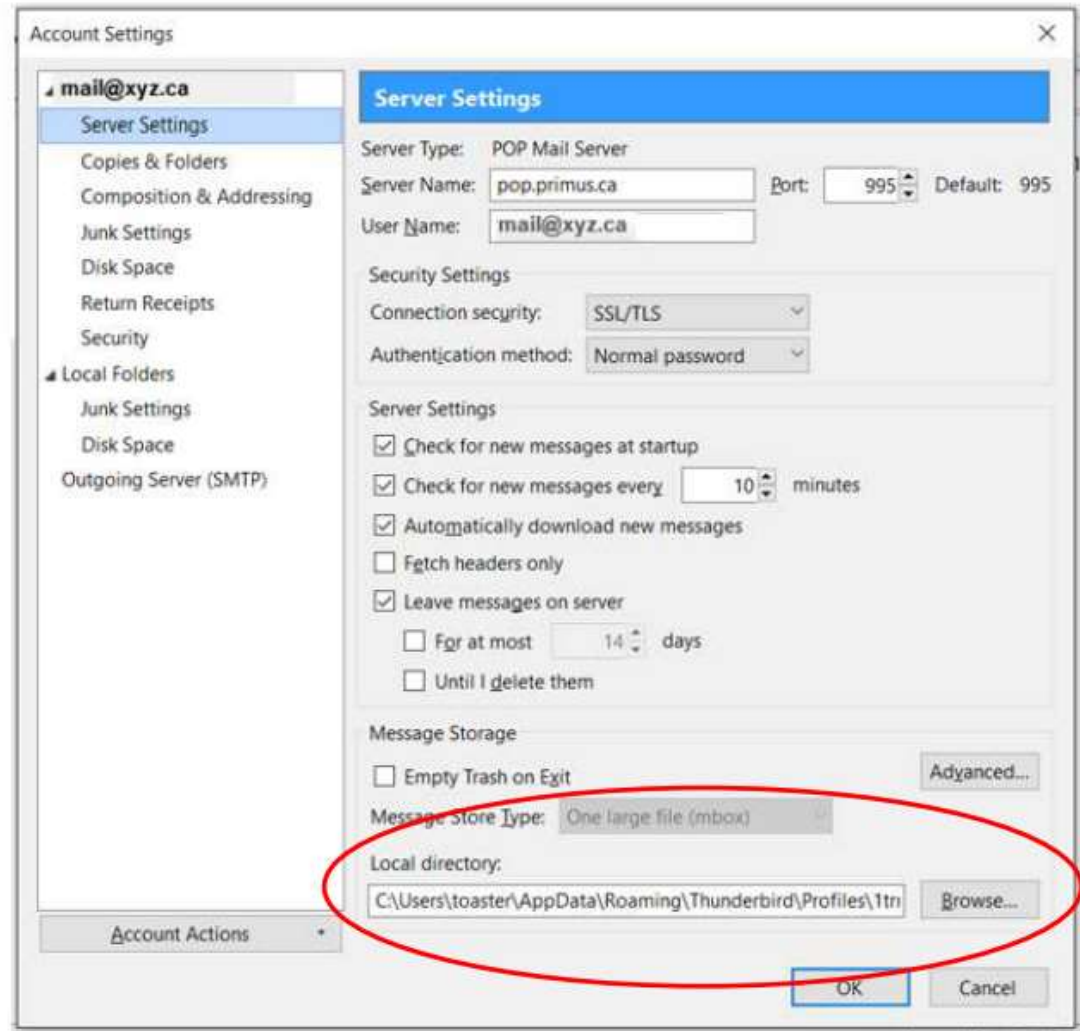
However, the mail folder location can be customized using:

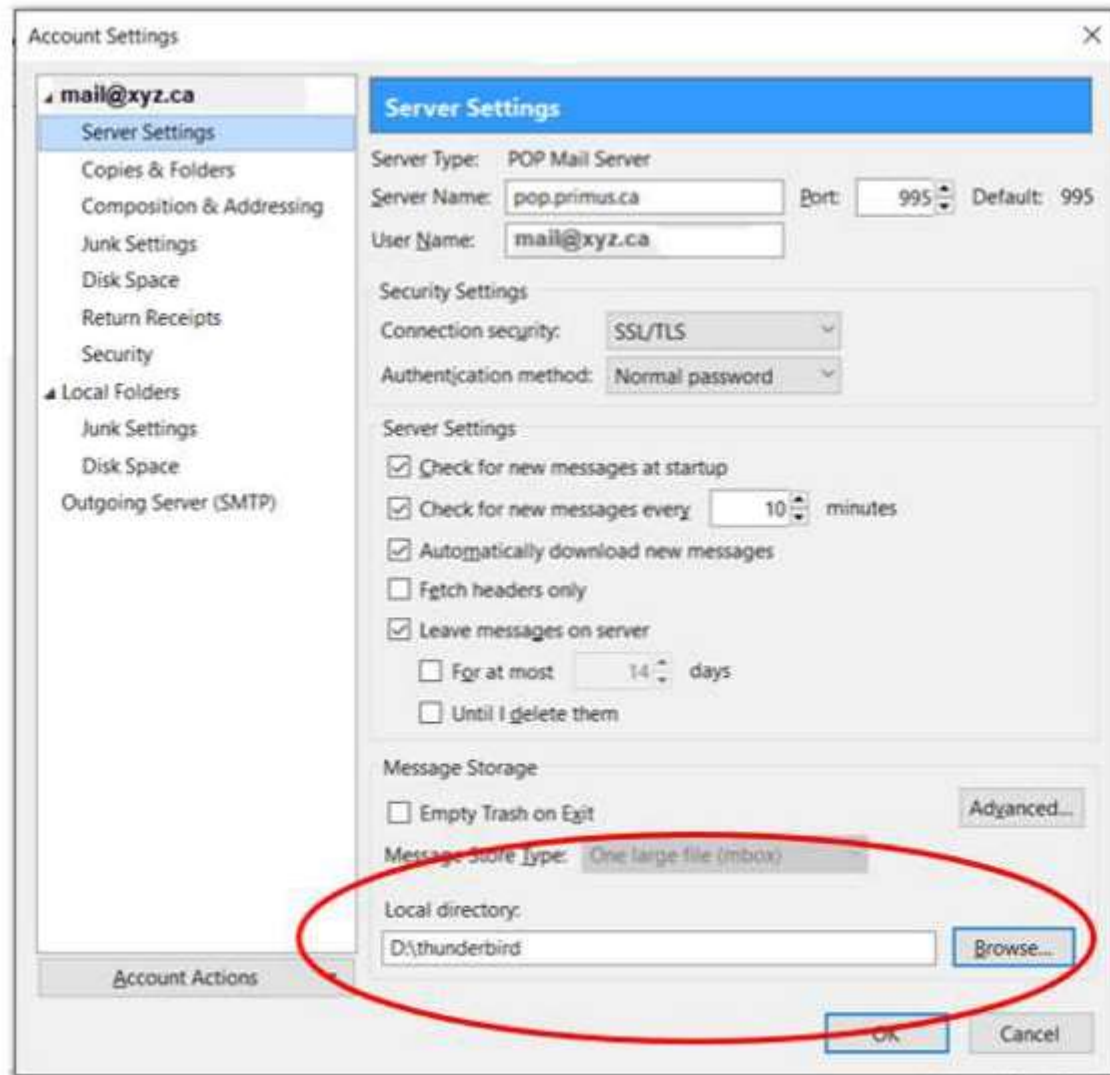
Tools –

Account Settings –














Server Settings –

Local directory





> This PC > DataDisk (D:) > thunderbird

<input type="checkbox"/> Name	Date modified	Type	Size
 Inbox.sbd	2015-12-08 9:05 PM	File folder	
 Trash.sbd	2015-12-28 8:21 PM	File folder	
 Drafts	2015-12-02 8:50 AM	File	4 KB
 Drafts.msf	2015-12-28 8:16 PM	MSF File	4 KB
 filterlog.html	2015-12-07 11:29 ...	Firefox HTML Doc...	1 KB
 Inbox	2016-01-06 4:11 PM	File	1,295 KB
 Inbox.msf	2016-01-06 4:20 PM	MSF File	5 KB
 msgFilterRules.dat	2015-12-28 8:21 PM	DAT File	1 KB
 popstate.dat	2016-01-06 4:11 PM	DAT File	1 KB
 Sent	2015-12-28 8:34 PM	File	64 KB
 Sent.msf	2015-12-28 8:34 PM	MSF File	11 KB
 Trash	2015-12-28 8:34 PM	File	46 KB
 Trash.msf	2015-12-28 8:34 PM	MSF File	5 KB














This PC > DataDisk (D:) > thunderbird

Name	Date modified	Type	Size
Inbox.sbd	2015-12-08 9:05 PM	File folder	
Trash.sbd	2015-12-28 8:21 PM	File folder	
Drafts	2015-12-02 8:50 AM	File	4 KB
Drafts.msf	2015-12-28 8:16 PM	MSF File	4 KB
filterlog.html	2015-12-07 11:29 ...	Firefox HTML Doc...	1 KB
Inbox	2016-01-06 4:11 PM	File	1,295 KB
Inbox.msf	2016-01-06 4:20 PM	MSF File	5 KB
msgFilterRules.dat			
popstate.dat			
Sent			
Sent.msf			
Trash			
Trash.msf			

Inbox is the mail file in mbox format











Inbox.msf is an index file (Mail Summary File)
If this doesn't exist, it is re-created when
Thunderbird starts

This PC > DataDisk (D:) > thunderbird

<input type="checkbox"/> Name	Date modified	Type	Size
 Inbox.sbd	2015-12-08 9:05 PM	File folder	
 Trash.sbd			
 Drafts			4 KB
 Drafts.msf			4 KB
 filterlog.html			1 KB
 Inbox			1,295 KB
 Inbox.msf	2016-01-06 4:20 PM	MSF File	5 KB
 msgFilterRules.dat	2015-12-28 8:21 PM	DAT File	1 KB
 popstate.dat	2016-01-06 4:11 PM	DAT File	1 KB
 Sent	2015-12-28 8:34 PM	File	64 KB
 Sent.msf	2015-12-28 8:34 PM	MSF File	11 KB
 Trash	2015-12-28 8:34 PM	File	46 KB
 Trash.msf	2015-12-28 8:34 PM	MSF File	5 KB

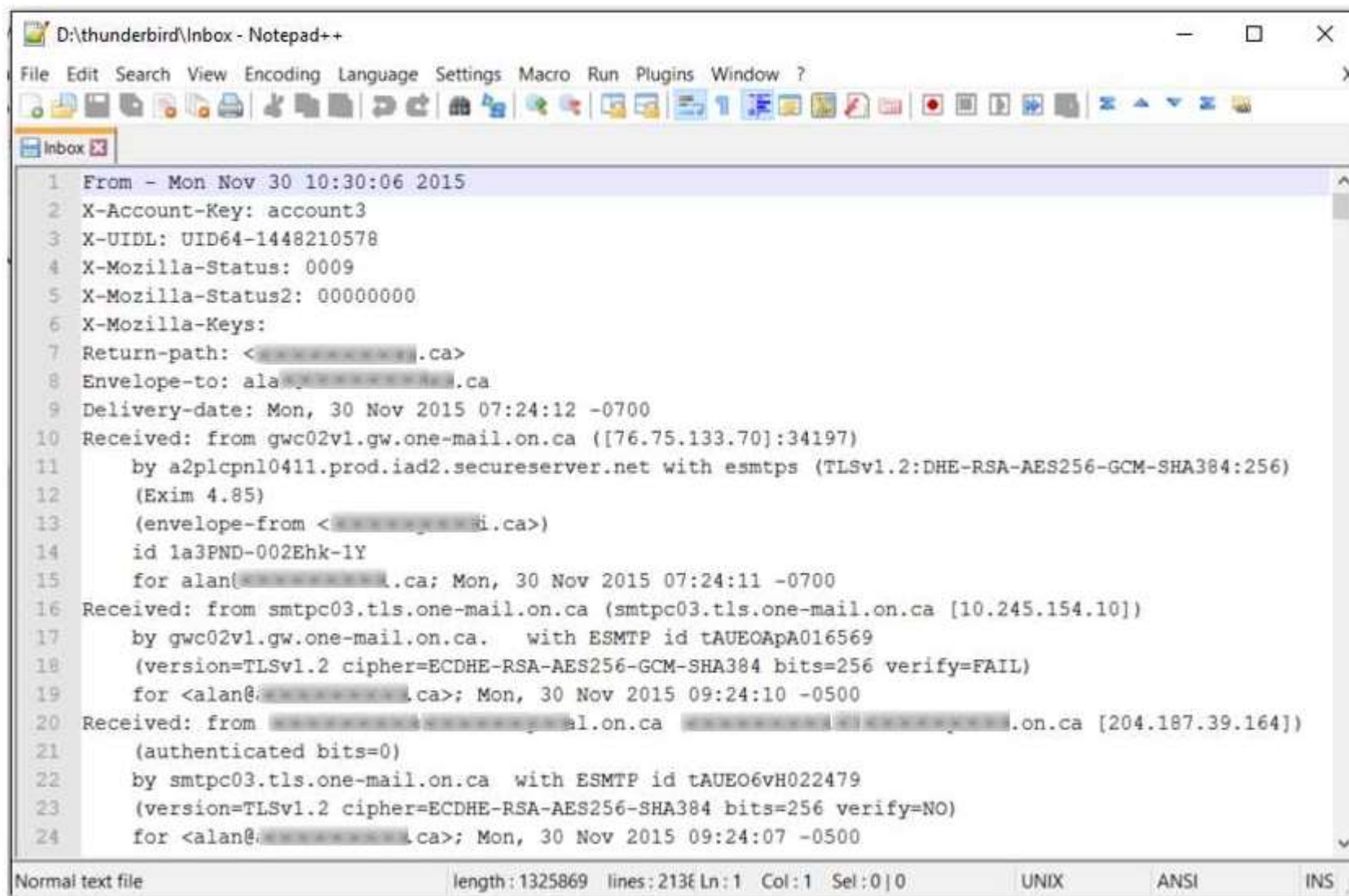
Inbox.sbd is a sub-directory

> This PC > DataDisk (D:) > thunderbird > **Inbox.sbd**

<input type="checkbox"/> Name	Date modified	Type	Size
 Computing.sbd	2015-12-08 9:05 PM	File folder	
 Travel.sbd	2015-12-08 9:08 PM	File folder	
 Alan	2015-12-08 9:06 PM	File	10 KB
 Alan.msf	2016-01-16 4:34 PM	MSF File	5 KB
 Carol	2015-12-08 9:06 PM	File	2 KB
 Carol.msf	2015-12-28 8:18 PM	MSF File	4 KB
 Computing	2015-12-08 9:05 PM	File	0 KB
 Computing.msf	2015-12-23 9:52 AM	MSF File	2 KB
 Travel	2015-12-08 8:57 PM	File	0 KB
 Travel.msf	2015-12-23 9:52 AM	MSF File	2 KB

Inbox.sbd contains files (e.g. Alan, Carol) and sub-folders (e.g. Computing, Travel)

Mail File is Pure Text (ASCII)



The image shows a Notepad++ window titled "D:\thunderbird\Inbox - Notepad++". The window contains the raw ASCII text of an email header, which is a plain text file. The text is as follows:

```
1 From - Mon Nov 30 10:30:06 2015
2 X-Account-Key: account3
3 X-UIDL: UID64-1448210578
4 X-Mozilla-Status: 0009
5 X-Mozilla-Status2: 00000000
6 X-Mozilla-Keys:
7 Return-path: <[REDACTED].ca>
8 Envelope-to: ala@[REDACTED].ca
9 Delivery-date: Mon, 30 Nov 2015 07:24:12 -0700
10 Received: from gwc02v1.gw.one-mail.on.ca ([76.75.133.70]:34197)
11     by a2plcpnl0411.prod.iad2.secureserver.net with esmtps (TLSv1.2:DHE-RSA-AES256-GCM-SHA384:256)
12     (Exim 4.85)
13     (envelope-from <[REDACTED].ca>)
14     id 1a3PND-002Ehk-1Y
15     for alan@[REDACTED].ca; Mon, 30 Nov 2015 07:24:11 -0700
16 Received: from smtp03.tls.one-mail.on.ca (smtp03.tls.one-mail.on.ca [10.245.154.10])
17     by gwc02v1.gw.one-mail.on.ca. with ESMTTP id tAUEOApA016569
18     (version=TLSv1.2 cipher=ECDHE-RSA-AES256-GCM-SHA384 bits=256 verify=FAIL)
19     for <alan@[REDACTED].ca>; Mon, 30 Nov 2015 09:24:10 -0500
20 Received: from [REDACTED].on.ca ([REDACTED].on.ca [204.187.39.164])
21     (authenticated bits=0)
22     by smtp03.tls.one-mail.on.ca with ESMTTP id tAUEO6vH022479
23     (version=TLSv1.2 cipher=ECDHE-RSA-AES256-SHA384 bits=256 verify=NO)
24     for <alan@[REDACTED].ca>; Mon, 30 Nov 2015 09:24:07 -0500
```

At the bottom of the window, the status bar shows: "Normal text file", "length: 1325869", "lines: 2136", "Ln: 1", "Col: 1", "Sel: 0|0", "UNIX", "ANSI", and "INS".

Handling Mail Files and Folders

Mail files can be easily backed up

The simplest method is to copy the entire d:\thunderbird folder to an external drive (e.g. USB memory stick)

Backup can be automated using software, e.g. FreeFileSync (File/folder synchronization)



<https://freefilesync.org>

Portable E-mail Address

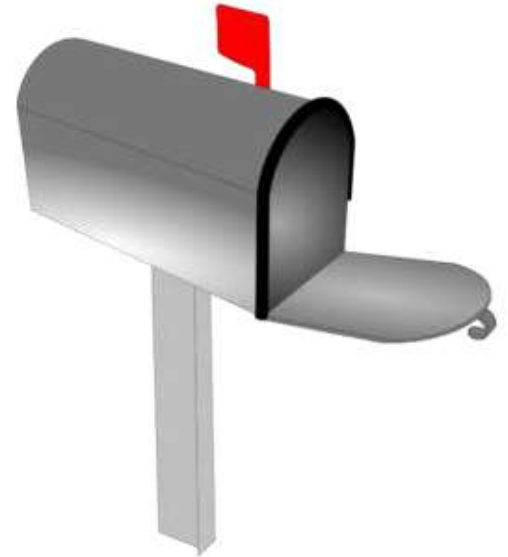
Is your E-mail address something like:

alan.german@bell.net

or

alan.german@rogers.com

If you switch ISP's, you have to change your address!





You could use something like G-mail:

alan.german@gmail.com

But, there's a problem...


File Edit View Bookmarks Tools Window Help

How you'll sign in Create a Gmail address for signing in to your Google Account

How you'll sign in Create a

accounts.google.com/lifecycle/steps/signup/username

Search Google JS VPN



How you'll sign in

Create a Gmail address for signing in to your Google Account

Username @gmail.com

! That username is taken. Try another.

Available: [alangerman439](#) [germanalan712](#)
[alangerman515](#)

[Use your existing email](#) [Next](#)

English (United States) Help Privacy Terms

00 Reset 100% 11:47 AM

All the good ones (and some not so good) have been taken

Available:

- Alangerman439
- Germanalan712
- agerman515



An Alternate Strategy



How you'll sign in

Create a Gmail address for signing in to your Google Account

Username

AlanTheLinuxGuy

@gmail.com

You can use letters, numbers & periods

[Use your existing email](#)

[Next](#)



Create a strong password

Create a strong password with a mix of letters, numbers and symbols

Password

SecretPassword

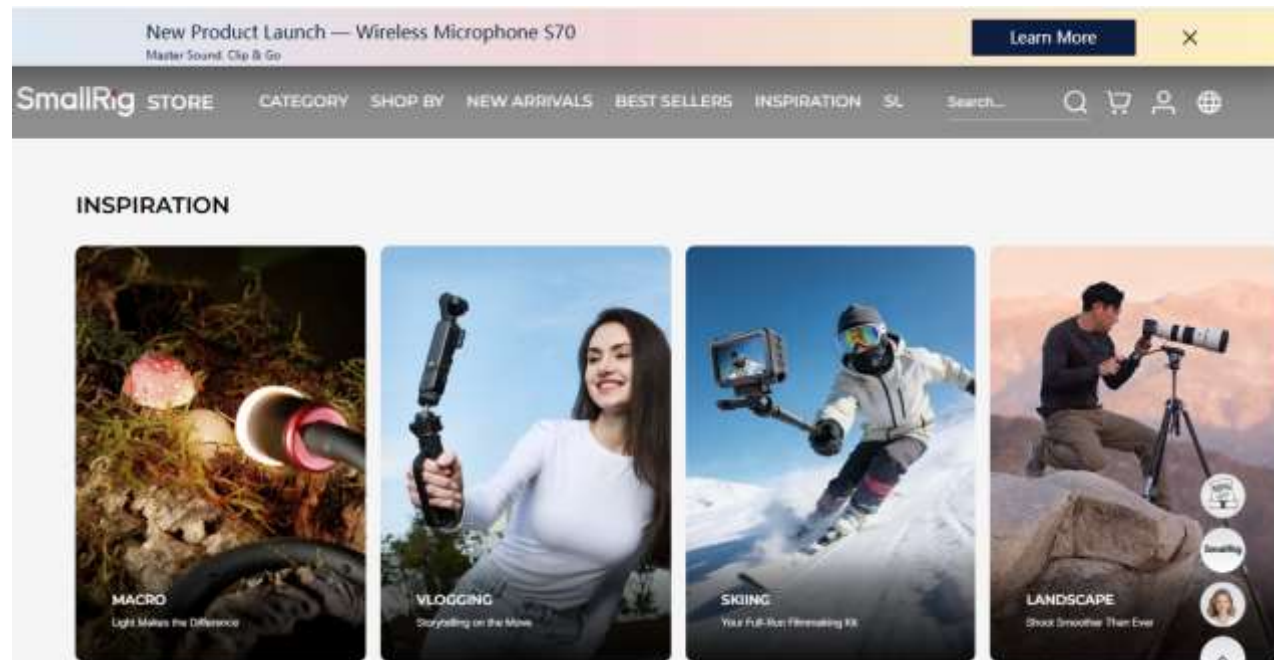
Confirm

Show password

Next

Disposable E-mail Addresses

- Chris wants to get create an account at SmallRig Canada
 - get emails about products & specials
- He doesn't want to use chris.taylor@opcug.ca
 - he doesn't necessarily trust SmallRig
 - what if SmallRig sells his address to spammers?



- National Capital Freenet (NCF) allows you to create disposable/throw-away addresses as aliases to your actual NCF address, e.g.
 - SR.bpu19z@ncf.ca as an alias to CTaylor@ncf.ca
- SR.bpu19z@ncf.ca can be used to register at SmallRig
- Emails sent to SR.bpu19z@ncf.ca end up in Chris's mailbox CTaylor@ncf.ca
- They remain addressed *to* SR.bpu19z@ncf.ca
 - Chris can tell that it was sent to the disposable address
 - can create rules to move such messages to a specific folder if he wants to organize emails
 - emails can be auto-forwarded from NCF address to another address e.g. chris.taylor@opcug.ca if he doesn't want to have to sign in at NCF to get emails

- If SmallRig
 - sells Chris's address SR.bpu19z@ncf.ca to a spammer
- Chris can
 - delete the SR.bpu19z@ncf.ca alias
 - subsequent mails sent to SR.bpu19z@ncf.ca bounce as *no such user*
- When sending email, Chris can choose any of the disposable email addresses to be the *From* address
 - if SmallRig proves not to be a problem, they never need know Chris used an alias
- NCF allows an unlimited number of disposable email addresses.

*If you want an NCF mailbox, the recommended donation is \$12/year
- a reasonable price for truly disposable email addresses*

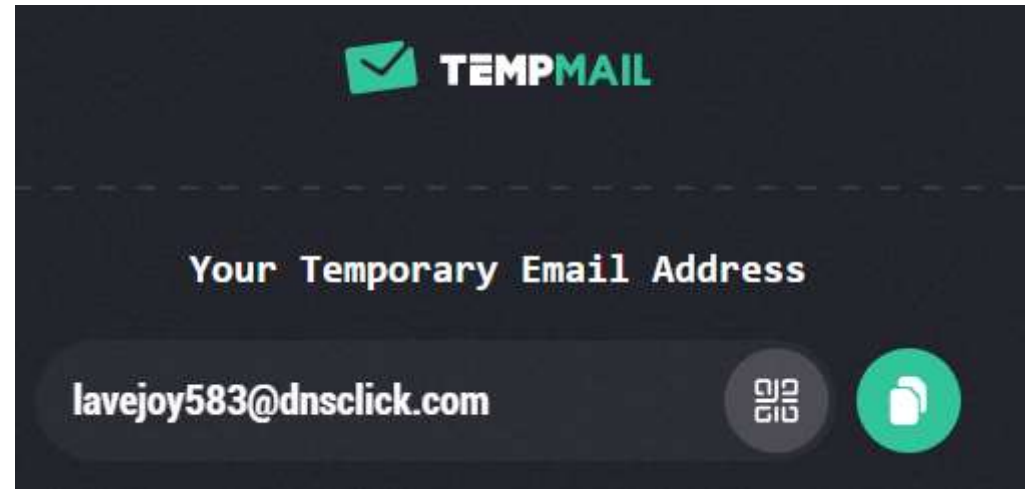


National
Capital
FreeNet

<https://www.ncf.ca/>

Temp-Mail

- Throw-away/ disposable E-mail service
- Temporary, secure, anonymous, and free
- Receive mail at a temporary address
- Self-destructs after a certain time elapses
- Use for website registration, etc.
- Avoid spam
- Stay safe



<https://temp-mail.org>

Portable and Completely Flexible!

mail@xyz.ca

Portable and Completely Flexible!

mail@xyz.ca



(1) Establish your own domain

Portable and Completely Flexible!

mail@xyz.ca



(1) Establish your own domain

(2) Use any username that you wish!

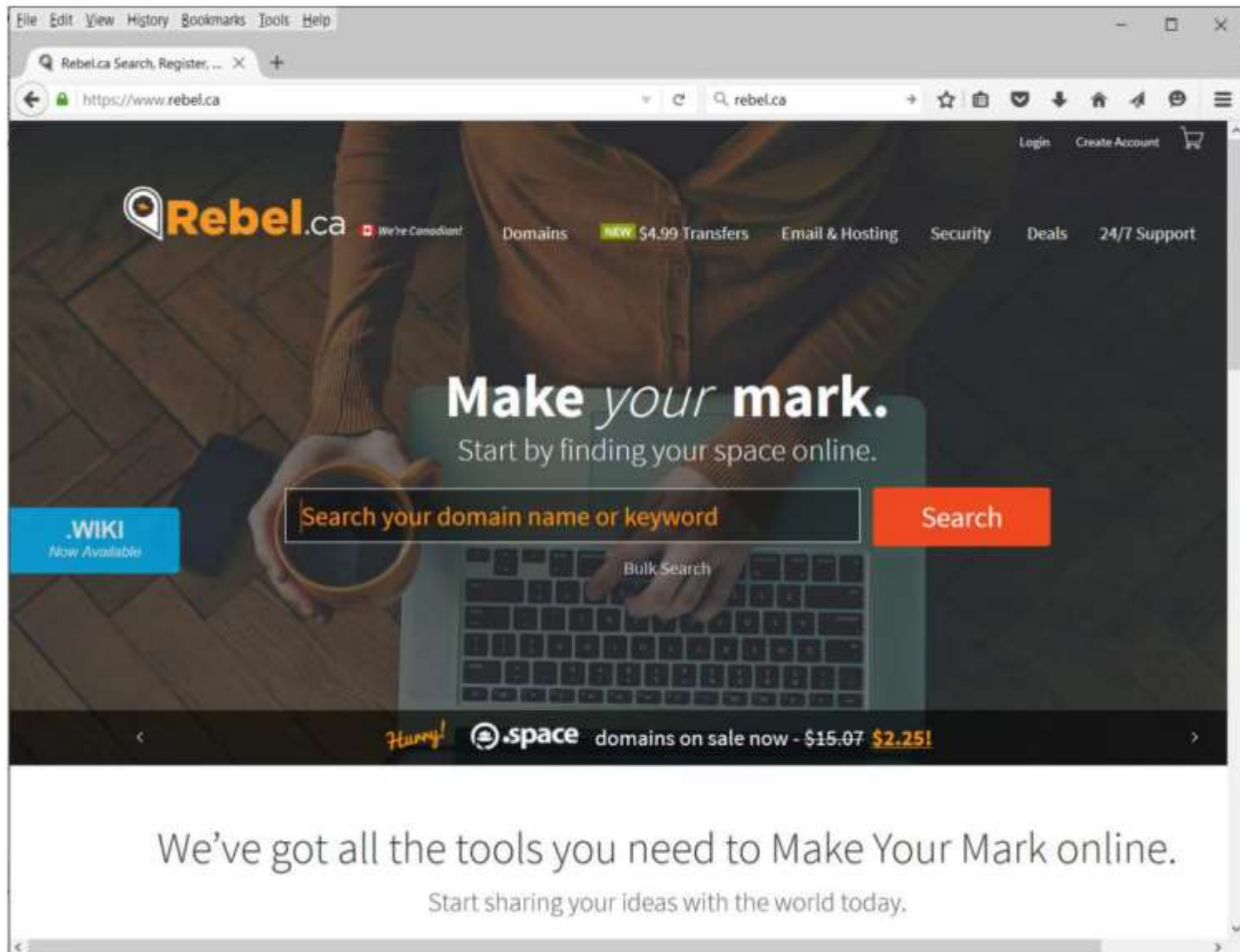
Need Three – or Four - Things

1. Domain name
2. Web hosting service
3. E-mail account
4. E-mail alias(es)



**Somewhat complex –
not for the faint of heart!**

Register a Domain Name



The image shows a browser window displaying the Rebel.ca website. The browser's address bar shows the URL <https://www.rebel.ca>. The website's header includes the Rebel.ca logo, a navigation menu with items like Domains, Transfers, Email & Hosting, Security, Deals, and 24/7 Support, and links for Login and Create Account. The main content area features a large banner with the text "Make your mark. Start by finding your space online." and a search bar with a "Search" button. A blue button labeled ".WIKI Now Available" is also present. At the bottom of the banner, there is a promotional message for ".space" domains on sale for \$2.25.

File Edit View History Bookmarks Tools Help

Rebel.ca Search, Register, ...

<https://www.rebel.ca> rebel.ca

Rebel.ca We're Canadian!

Domains **NEW** \$4.99 Transfers Email & Hosting Security Deals 24/7 Support

Login Create Account

Make your mark.
Start by finding your space online.

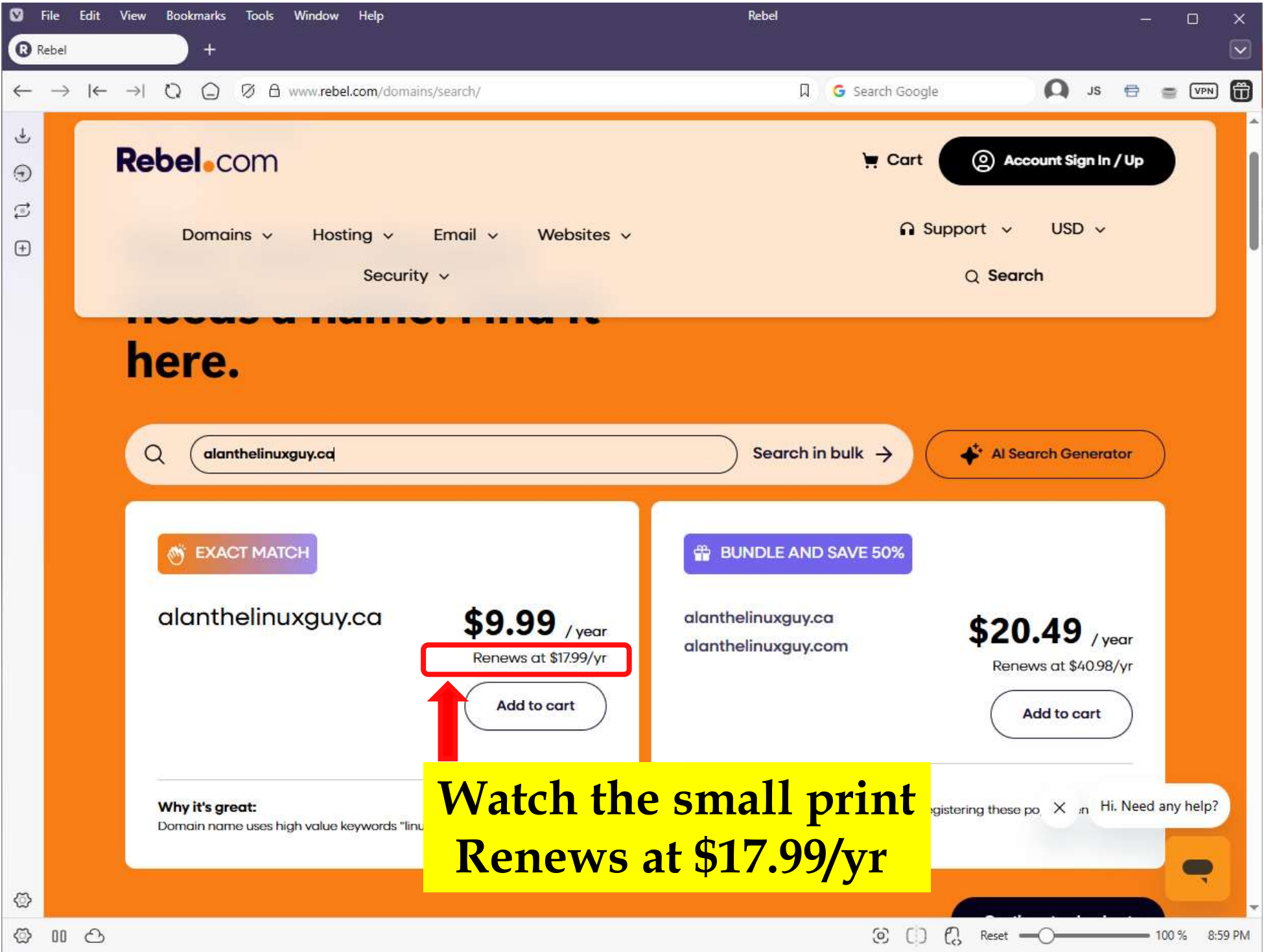
Search

.WIKI
Now Available

Bulk Search

Hurry! **.space** domains on sale now - \$15.07 **\$2.25!**

We've got all the tools you need to Make Your Mark online.
Start sharing your ideas with the world today.



Rebel.com

Cart

Account Sign In / Up

Domains ▾ Hosting ▾ Email ▾ Websites ▾
Security ▾

Support ▾ USD ▾

Search

here.



alanthelinuxguy.cd

Search in bulk →

AI Search Generator



EXACT MATCH

alanthelinuxguy.ca

\$9.99 / year

Renews at \$17.99/yr

Add to cart

Why it's great:

Domain name uses high value keywords "linu



BUNDLE AND SAVE 50%

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alanthelinuxguy.com

\$20.49 / year

Renews at \$40.98/yr

Add to cart

Registering these po... Hi. Need any help?

Watch the small print
Renews at \$17.99/yr



Hosting & Servers Domains Websites & Email Marketing & SEO Security & SSL Pro Services

Find your perfect domain Search

.ca C\$10.99 .com C\$15.49 .org C\$13.99

72% OFF NEW YEAR. NEW SITE.

Start 2026 right. Launch your website.

Let AI build your website for you. No tech skills needed!

Start Now

Starting at C\$3.89/mo

00 : 17 : 55 : 51
DAYS HOURS MINUTES SECONDS





Go

Affordable plan, great for personal projects.

As low as

C\$3.89/mo

~~C\$9.99~~ **SAVE 61%**

Grab Deal

- BASIC** Performance
- Single Website
- Unlimited**¹ Space & Traffic
- Powered by renewable energy
- 1 Email Account
- Standard** Hosting Features
- Free Site Migration

Best Deal



Pro

Pro performance, premium features, free domain², and more!

As low as

C\$3.92/mo

~~C\$13.99~~ **SAVE 72%**

Check features vs. price

- ADVANCED** Performance
- Unlimited**¹ Websites
- Unlimited**¹ Space & Traffic
- Powered by renewable energy
- Unlimited** Email Accounts
- Standard** Hosting Features



Enterprise

Best performance for demanding websites, with SSL.

As low as

C\$11.89/mo

~~C\$23.50~~ **SAVE 49%**

- FASTEST** Performance
- Unlimited**¹ Websites
- Unlimited**¹ Space & Traffic
- Powered by renewable energy
- Unlimited** Email Accounts
- Standard** Hosting Features

E-Mail Aliases

An alias is simply a secondary E-mail address, that is registered with the ISP's mail server, and which points to the user's primary E-mail address

Primary Address

mail@xyz.ca

Alias

mailbox@xyz.ca

alan@xyz.ca

carol@xyz.ca

centaurusa@xyz.ca





Settings

-  Preferences
-  Folders
-  **Identities**
-  Responses

Identities

Alan and Carol <mail@xyz.ca>
Alan German <alan@xyz.ca>
Carol German <carol@xyz.ca>
Centaurusa <centaurusa@xyz.ca>
CygnumX1 <cygnusx1@xyz.ca>
M31 <m31@xyz.ca>
mailbox <mailbox@xyz.ca>

Why Centaurusa, CygnusX1 and M31?

Centaurus A, Cygnus X-1 and M31 are all black holes!

These userids are all used as disposable E-mail addresses



Main E-mail Addresses

mail@xyz.ca

Used solely for friends and family

mailbox@xyz.ca

Used for trusted companies, subscriptions, etc.

centaurusa@xyx.ca (cygnusx1, m31...)

Everything else!



Contact Me

The bad news is... I don't own **xyz.ca**; it was just used for demonstration purposes.
So, you **can't** contact me at alan@xyz.ca



Contact Me

The good news is that I check alan.german@opcug.ca on a daily basis, usually multiple times each day





Any Questions