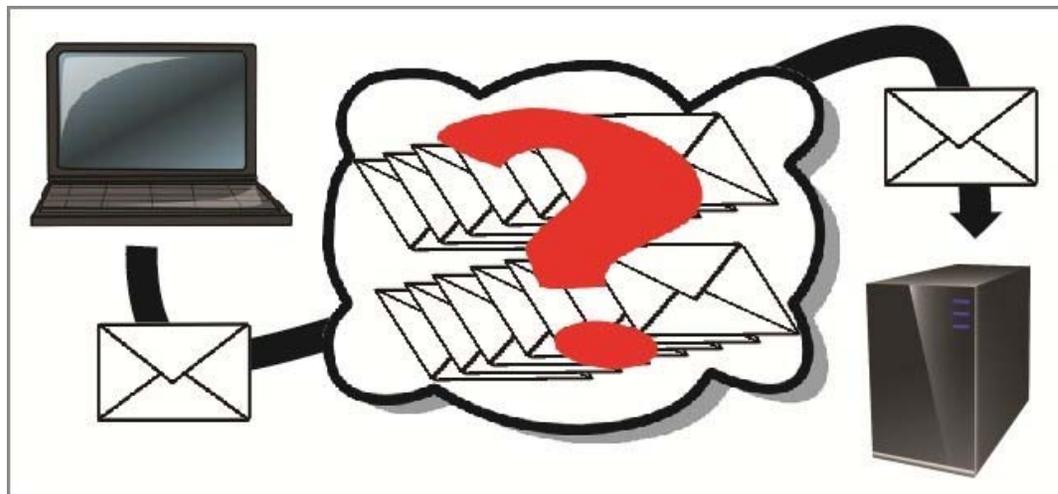


# HOW DOES EMAIL WORK?

Adapted from an article from "How-To Geek"



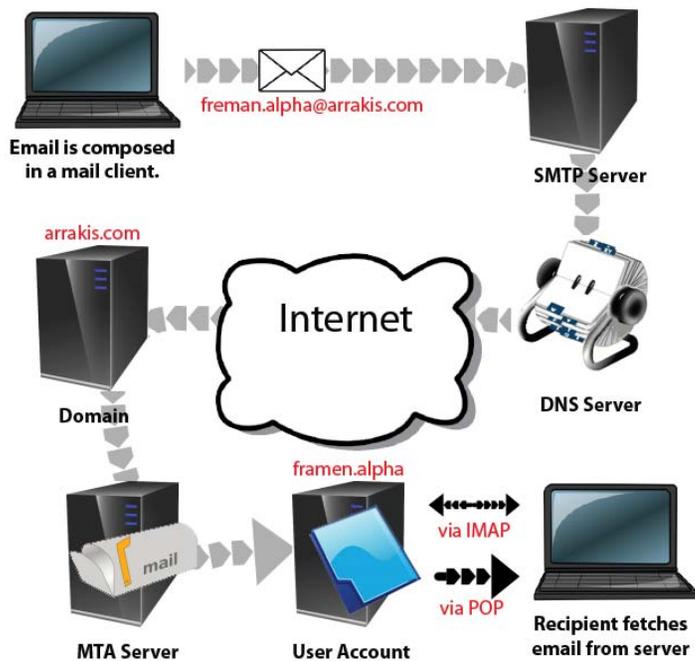
- You send and receive it everyday, it's instantaneous, and it doesn't cost a thing. It's email, one of the most important tools of today. Let's take a look at how it works, under-the-hood and in normal language



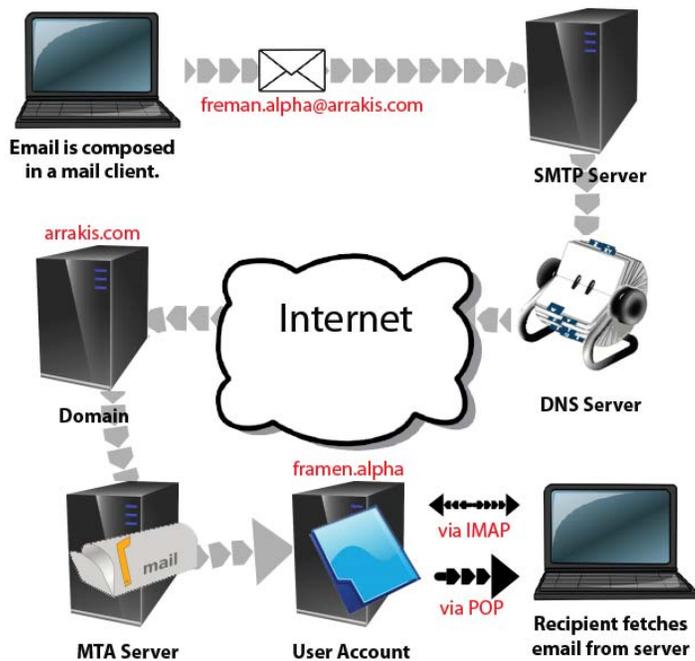
## • What Exactly Is Email?

- Electronic mail (abbreviated as e-mail, email, E-Mail, etc.) is a very old form of computer-based communication.
- A long time ago – in technological, not human, terms – computers were giant machines. People used dial-up terminals to access them, and each machine held storage for multiple users. As is the case with any community, people found useful and unique ways to communicate with one another, and a messaging system evolved. The caveat was that you could only send messages to other users on the same system, at least up until 1971.
- As the story goes, along came Ray Tomlinson who sent the first email by addressing a user on another system using the '@' symbol. Obviously, both the underlying dynamics and far-reaching consequences weren't so simple, but it was that notion that brings us to where we are today.

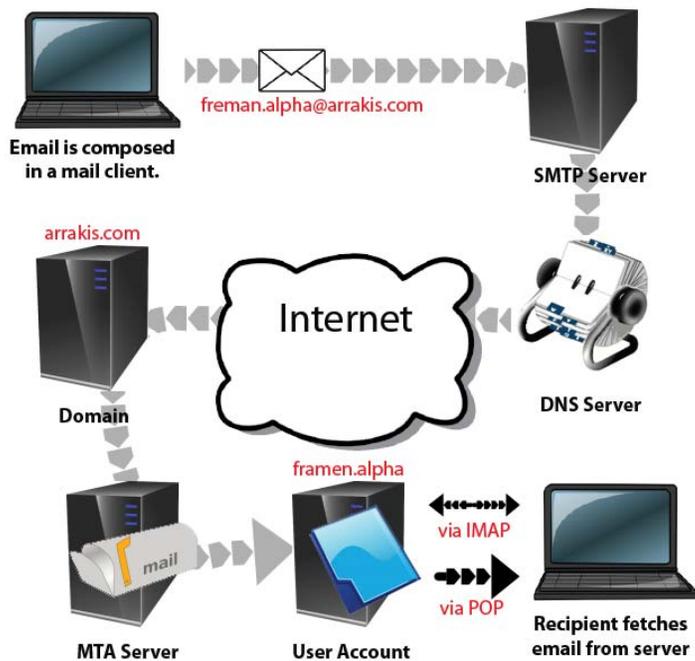




- Email was, at that time, the equivalent of today's text message. Over time, it changed and evolved like anything else; it has sender and receiver info, a subject line, a message body, and attachments, but on the whole, emails are pretty simple documents. It's not so easy to get it from point A to point B, however.
- Like anything else, there's an intricate process involved that works behind the scenes to make it seem as seamless as possible.
- A lot of the ideas used in relaying email were important in formulating document transfer, which is at the core of things like bulletin board systems and the world wide web.



- When someone, let's say a spice seller, sends an email, it has to have an address in the form of `user@domain.ext`.
- Our example has `freman.alpha@arrakis.com`. The email gets sent by the client to an outgoing mail server via **SMTP** (*Simple Mail Transfer Protocol*).
- The SMTP server is like your local post office, which checks your postage and address and figures out where to send your mail. It doesn't understand domains, though. They're a sort of abstract thing, so the SMTP server contacts a Domain Name System server.
- The DNS server is a sort of phone or address book for the internet; it translates domains like "arrakis.com" to an IP address like "74.238.23.45."
- Then, it finds out if that domain has any "MX" or **Mail Exchange** servers on it and makes a note of it. This is like your post office consulting maps of where your mail is supposed to go, calling their local post office, and checking to see if your friend has a mailbox or P.O. box to receive mail.



- Now that the SMTP server has the proper info, the message gets sent from that server to the target domain's mail exchange server.
- This server is referred to as an MTA, or Mail Transfer Agent. It decides where exactly to put the mail, much like how your friend's post office figures out how best to get it delivered.
- Then, your friend goes and fetches the mail, usually using a client that works via POP or IMAP.

Settings

General Labels Accounts and Import Filters **Forwarding and POP/IMAP** Chat V

Priority Inbox Offline Themes Buzz

**Forwarding:**

Tip: You can also forward only some of your mail by [creating a filter!](#)

**POP Download:** [Learn more](#)

**1. Status: POP is enabled** for all mail that has arrived since 8/2/05

- Enable POP for **all mail** (even mail that's already been downloaded)
- Enable POP for **mail that arrives from now on**
- Disable POP

**2. When messages are accessed with POP**

keep Gmail's copy in the Inbox

**3. Configure your email client** (e.g. Outlook, Eudora, Netscape Mail)  
[Configuration instructions](#)

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**IMAP Access:** (access Gmail from other clients using IMAP) [Learn more](#)

**1. Status: IMAP is enabled**

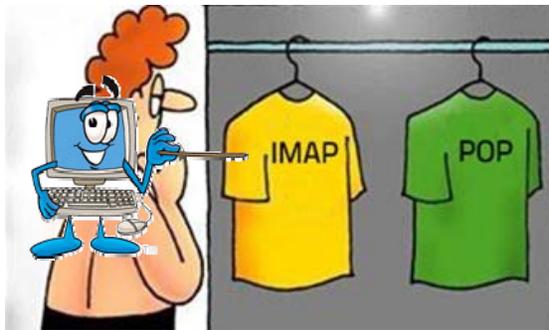
- Enable IMAP
- Disable IMAP

**2. Configure your email client** (e.g. Outlook, Thunderbird, iPhone)  
[Configuration instructions](#)

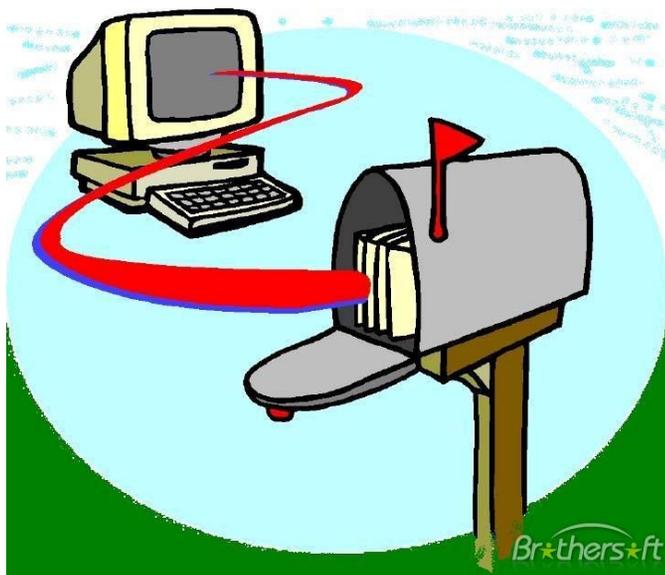
# POP VS. IMAP



- These two acronyms plague email settings panels everywhere, so let's take a deeper look at them.
- POP stands for **Post Office Protocol**.
- It's useful because, like a post office, you can pop in, grab all of your mail, and then leave. You don't need to stay connected, and aside from leaving a copy on the server, it's a pretty cut-and-dry procedure. If you don't leave a copy on the server, it doesn't require much space or bandwidth either.
- You can use POP to grab mail from several different inboxes on several different email servers and consolidate them on one. It has its drawbacks, though. POP is a unidirectional protocol; information travels one way.
- Once you download the email to a client, it's up to the client to sort through its different statuses and so on. That's fine if you only ever access mail from one place.
- Nowadays, though, it's common to get email access from your phone's client, the web interface when you're away somewhere, and a client when you're at home. It'd be tedious to sort through all of that info over several devices, assuming you've even kept a copy of each email on the server to begin with.



- **IMAP**'s a bit smarter about things. While POP can be considered to be very "client-oriented," the **Internet Message Access Protocol** was designed to work in a different way: it's "server-oriented," and bi-directional.
- Clients have a two-way communication with their servers. **All messages are kept on the server** so multiple clients can access them. When you check an email on your phone, it's marked as read and during the next interaction with the server, that status is sent back so all other clients can be updated with it.
- It's like having your mail sent to an assistant at the post office who categorizes it and stores it for you, gives it to you whether you're at home, at work, or actually there, and makes changes to the stored copies as you do.
- You can keep a properly marked archive on your home client as well as on your mail server. IMAP also supports an offline mode; changes are synched with the server the next time you're online.
- You can configure IMAP mail servers to fetch mail from POP inboxes, too, which works really well if you're looking to consolidate.
- Of course, since IMAP works with the "cloud" ideal, server access and storage can be issues.
- Thankfully, storage space and bandwidth isn't as expensive as it used to be, but this can definitely be a trade-off for some people.



## Both SMTP and MTA

- Unlike your physical mailbox, your outgoing and incoming mail are handled by two different types of servers. There's really no discrimination towards receiving servers; any computer can be made an MTA (*Mail Transfer Agent*) pretty easily and handle things well.
- Sending mail is a different story. SMTP servers (*Simple Mail Transfer Protocol*) must have static IP addresses, and most ISPs block port 25 so that their users can't send mail themselves.
- Why? Because of the massive amounts of spam gnawing away at our collective bandwidth, the very stuff your MTA should be configured to filter out.
- You can configure your clients to use your ISP's SMTP server in lieu of running your own. The point is that you need both an MTA and an SMTP server to use email, as each is specialized for what it does.

SO.....  
WHERE FROM HERE???

*You've got*  
**m@il**





- Everybody needs three things to connect with the Internet:
  - a computer,
  - web browser software,
  - and an Internet service provider (ISP).
- You already have the computer, be it a tablet, laptop, or desktop Pc.
- And Windows web browsers.
  - Explorer
  - Chrome
  - Firefox



- That means most people need to find only an ISP. Although music wafts through the air to your car radio for free, you must pay an ISP for the privilege of surfing the web. When your computer connects to your ISP's computers, Windows automatically finds the Internet, and you're ready to surf the web.
- Choosing an ISP is fairly easy because you're often stuck with whichever ISPs serves your particular geographical area. Ask your friends and neighbors how they connect and whether they recommend their ISP.
- Although ISPs charge for Internet access, you don't always have to pay. Some places share their Internet access for free, usually through a wireless connection. If your laptop or tablet includes wireless support, and most do, you can browse the Internet whenever you're within range of a free wireless signal.



- A few ISPs charge for each minute you're connected, but most charge from \$30 to \$100 a month for unlimited service. (Some also offer faster connection speeds for more money.) Make sure that you know your rate before hopping aboard or else you may be unpleasantly surprised at the month's end.



- ISPs let you connect to the Internet in a variety of ways. The slowest ISPs require a dialup modem and an ordinary phone line. Faster still are broadband connections: special DSL or ISDN lines provided by some phone companies, and the even faster cable modems, supplied by your cable television company. When shopping for broadband ISPs, your geographic location usually determines your options.



- You need to pay an ISP for only one Internet connection. You can share that single connection with any other computers, cell phones, TVs, and other Internet-aware gadgetry in your home or office.