Tor

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Installing and Running Tor Browser

- You can download Tor browser from https://www.torproject.org

- Does Tor Browser look familiar?

  (Hint: it's a customized version of Firefox. We'll talk about this later.)

- Browse to https://www.maxmind.com/en/geoip_demo. What do we see?

Components of Tor Browser

- The Browser
  - Firefox, with a couple of extensions, and a special default configuration

- Tor
  - The *onion router*
  - Tor's control panel is called *Vidalia*

Firefox connects to the Tor network as if it were a proxy server.

Tor Utilities

From the Vidalia Control Panel:

- View the Network

- Bandwidth Graph

- Message Log

How Does Tor Work?

Meet Alice and Bob:
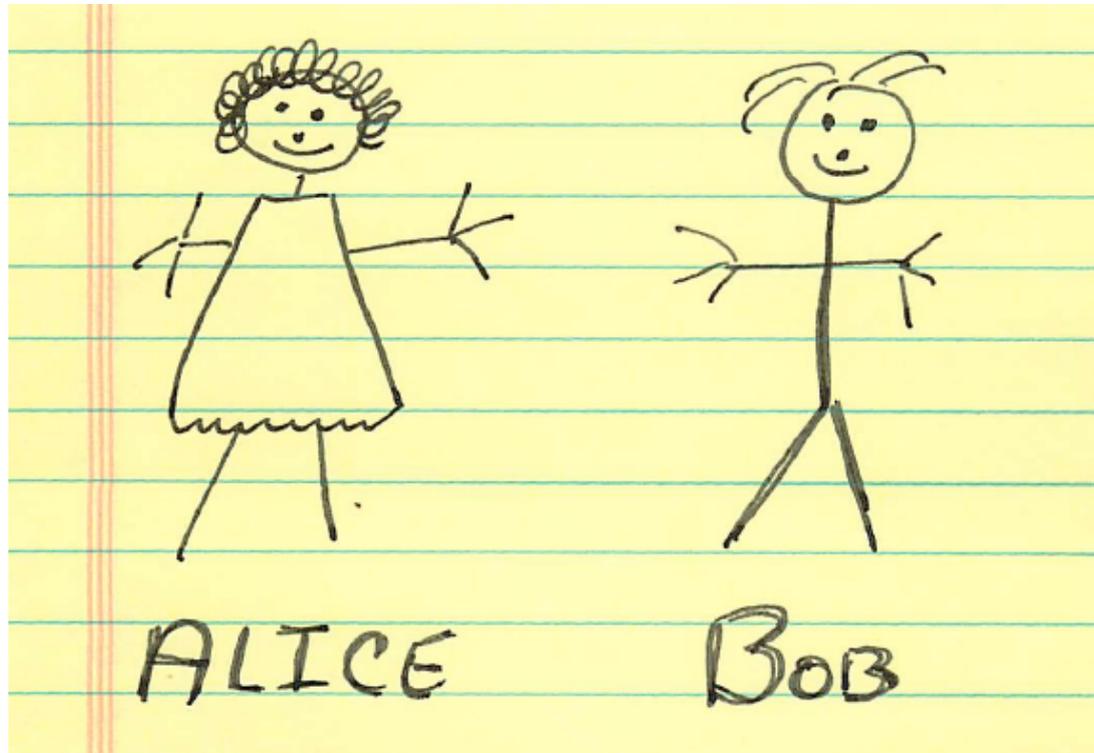
Alice's Dilemma

- Alice wants to send a letter to Bob.

- Alice doesn't want Bob to know that the letter came from her.

- So, Alice enlists the help of Tom, Dick, and Harry

Note: From a technical standpoint, this example isn't completely accurate. But it will give you the basic idea of how Tor works.

Alice's Plan

- Alice writes a letter to Bob, *without* signing it.
- Alice puts the letter in an envelope addressed to Bob,
- and puts that in an envelope addressed to Harry,
- and puts that in an envelope addressed to Dick,
- and puts that in an envelope addressed to Tom
- Alice mails the letter to Tom

Alice's Plan (Visual)

Here's what the letter looks like
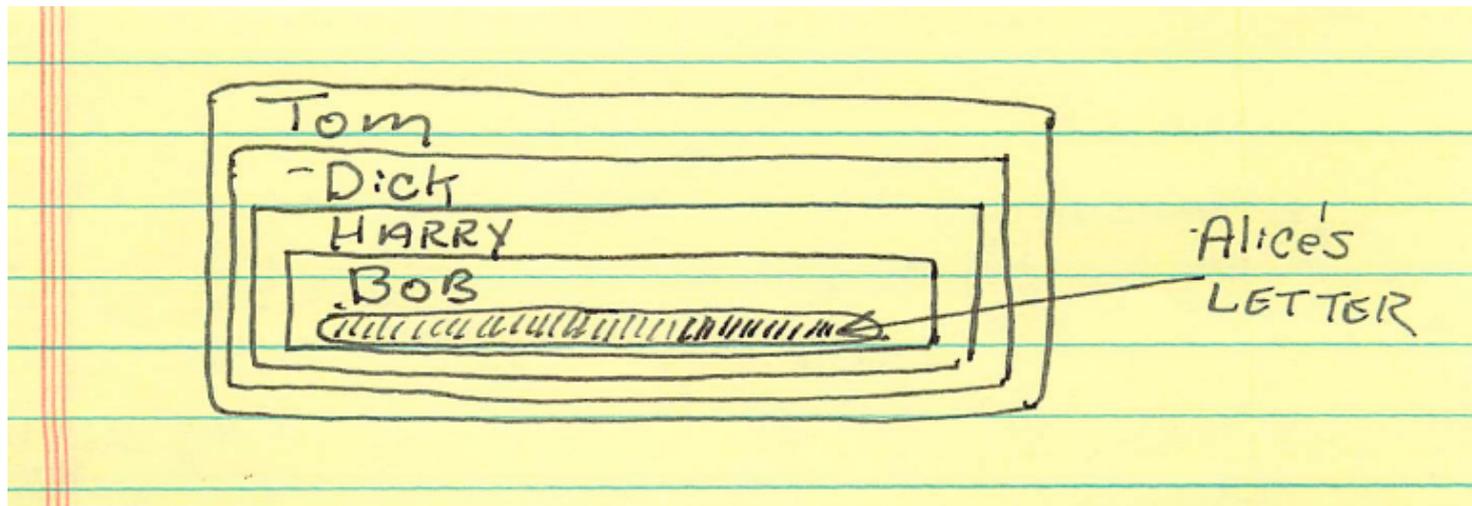
This is an *onion*. Layers are peeled away as the message is delivered.

Mailing The Letter

- Tom gets the letter, and mails the contents to Dick

- Dick gets the letter, and mails the contents to Harry

- Harry gets the letter, and mails the contents to Bob

- Bob reads Alice's letter

- As far as Bob can tell, the letter came from Harry. (Harry is an "exit node".)
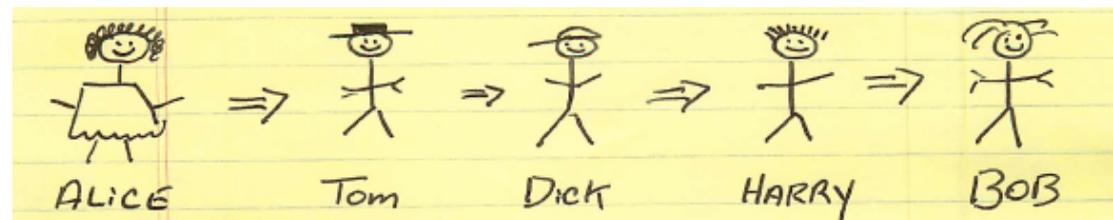
The Return Letter

- Bob writes back to Harry

- Harry puts Bob's letter in an envelope and sends it to Dick

- Dick puts it in an envelope and mails it to Tom

- Tom puts it in an envelope and mails it to Alice

- Alice opens all of the envelopes and reads Bob's reply.

Note: this is another onion.

Signing Letters

- Suppose Alice *wanted* Bob to know that she wrote the letter, and signs her name?

- What protection does this scheme offer to Alice (and Bob)?

Questions?