HEIG-VD DAI - SMTP and ncat

Link to the course

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Based on the original course by O. Liechti and J. Ehrensberger.

Objectives

- Learn electronic messaging protocols:
  - SMTP
  - POP3
  - IMAP
- Focus on the SMTP protocol
- Learn how to use ncat and Java to send an email to an SMTP server

Electronic messaging protocols: SMTP, POP3 and IMAP

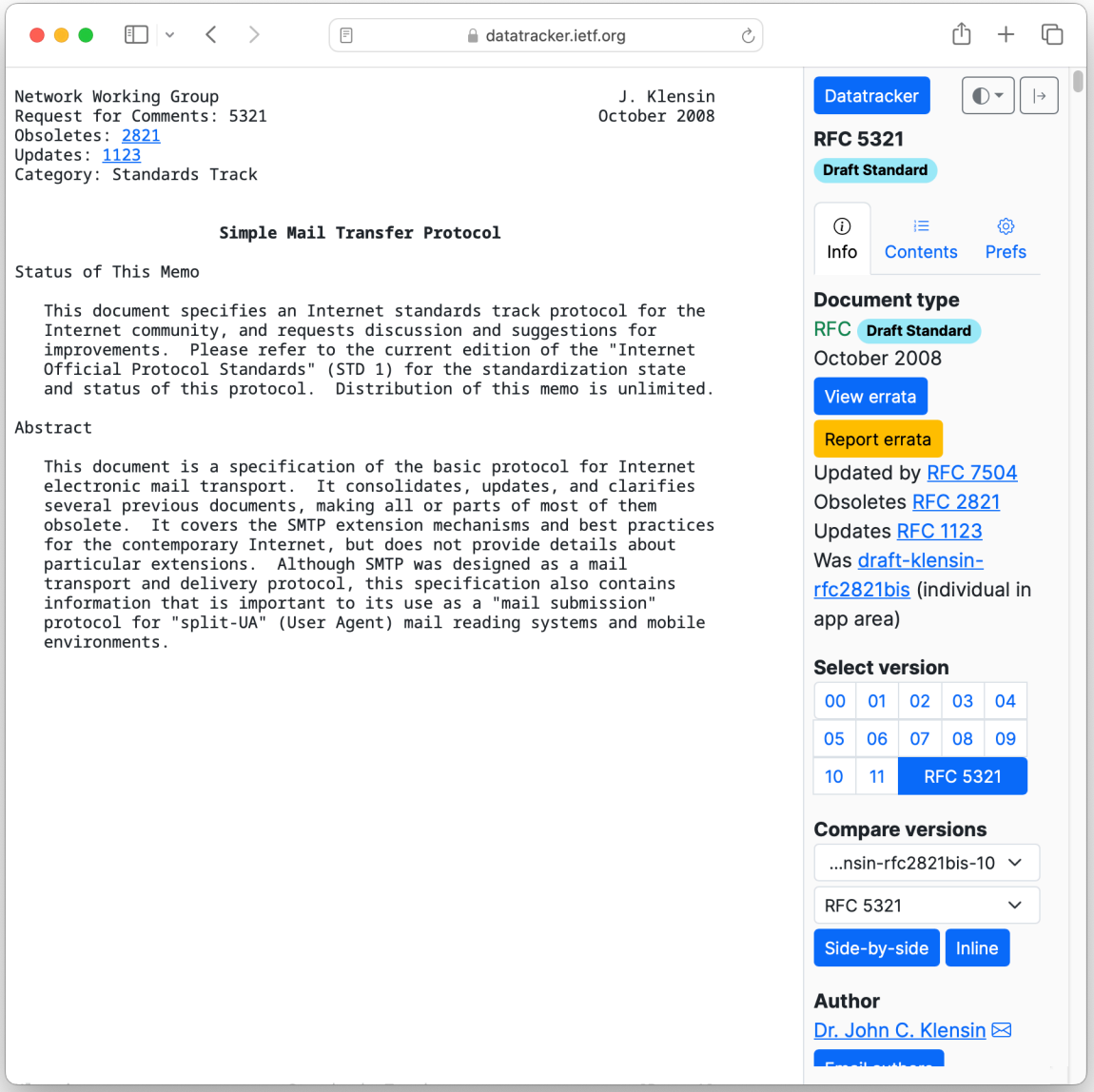
More details for this section in the course material. You can find other resources and alternatives as well.

Electronic messaging protocols: SMTP, POP3 and IMAP

- Email clients are called **Mail User Agents (MUA)**
- Email servers are called **Mail Transfer Agents (MTA)**
- They use different protocols to communicate

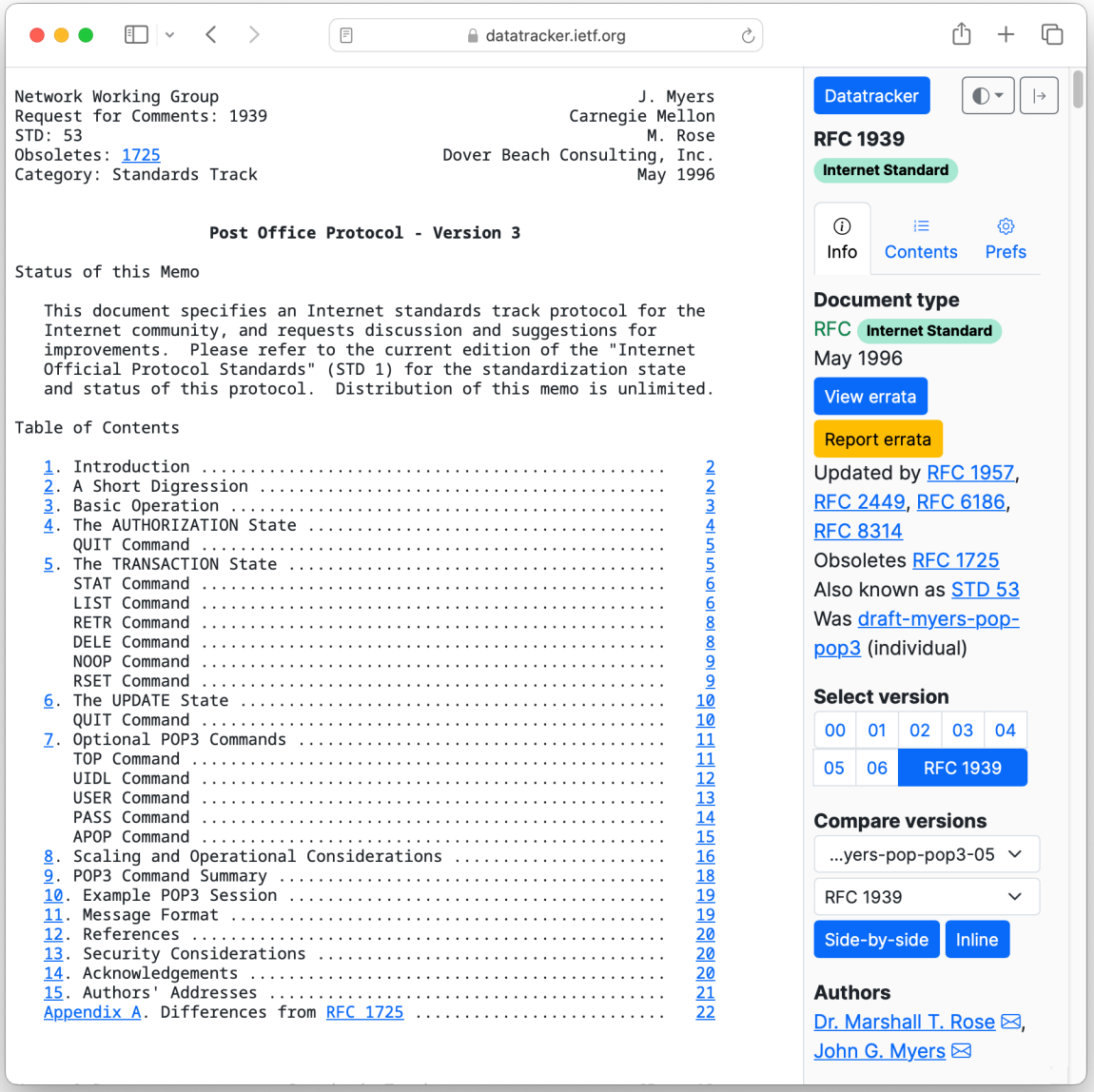
SMTP

- SMTP: Simple Mail Transfer Protocol
- Uses TCP port 25 (unencrypted) or 465 (encrypted)
- Used to send emails



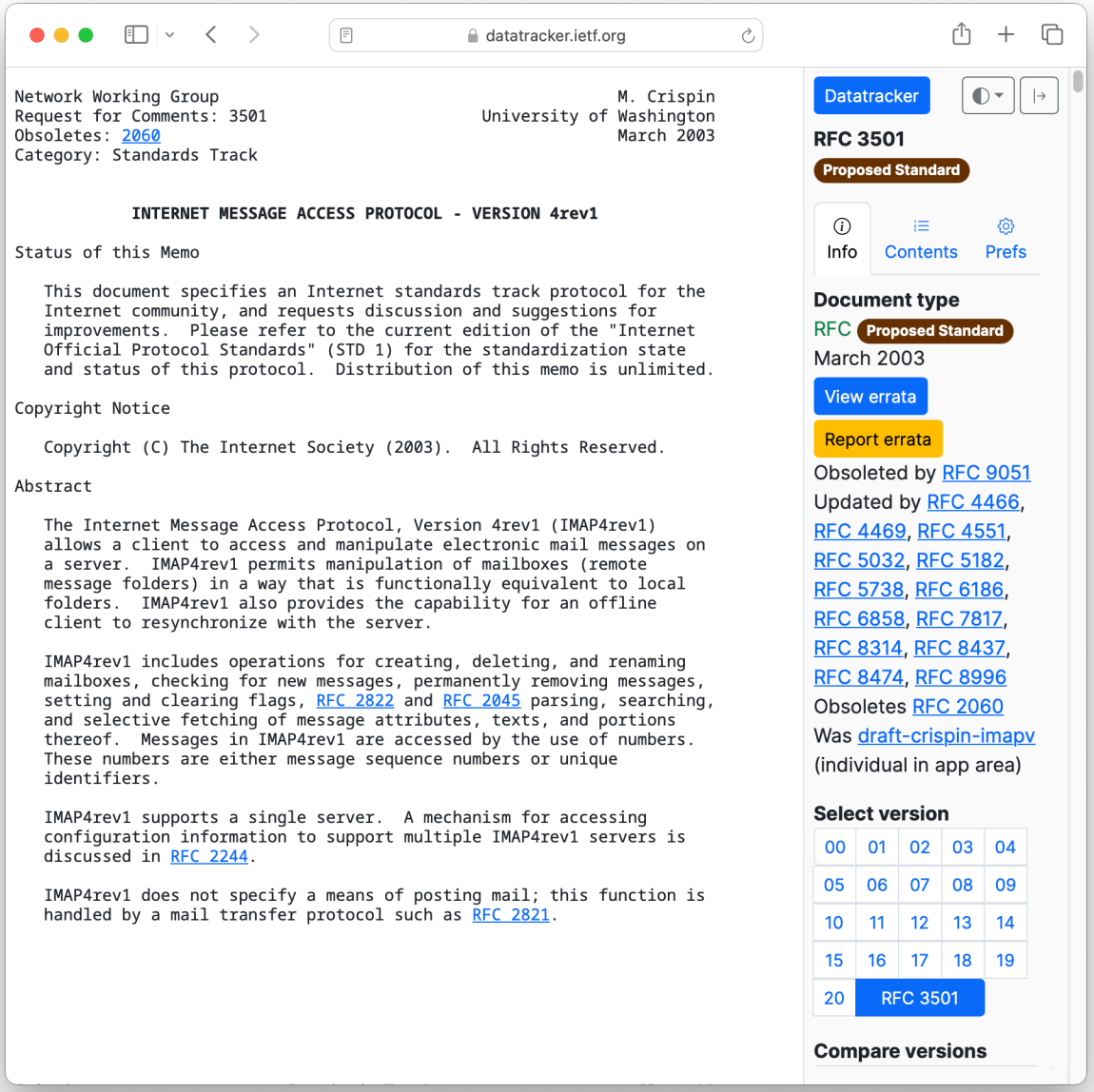
POP3

- POP3: Post Office Protocol
- Uses TCP port 110 (unencrypted) or 995 (encrypted)
- Used to retrieve emails from a server



IMAP

- IMAP: Internet Message Access Protocol
- Uses TCP port 143 (unencrypted) or 993 (encrypted)
- Used to retrieve emails from a server
- Much more powerful than POP3 (synchronization, ...)

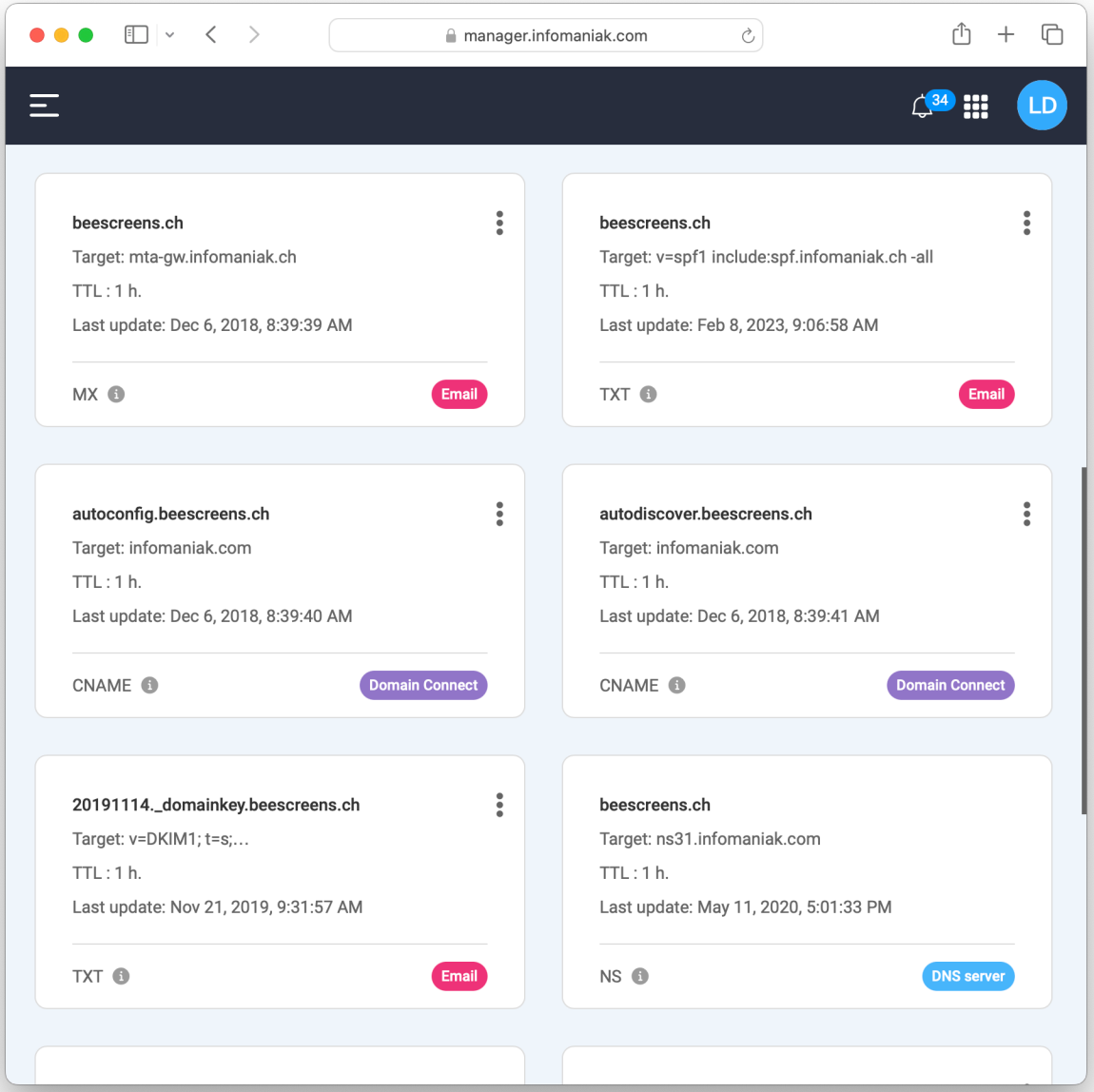


DNS records related to email

More details for this section in the course material. You can find other resources and alternatives as well.

DNS records related to email

- `MX` : Mail eXchange - Specifies the mail server responsible for a domain name
- `TXT` : Store any text-based information. Used for `SPF` records, for email authentication



Security concerns and spam

More details for this section in the course material. You can find other resources and alternatives as well.

Security concerns and spam

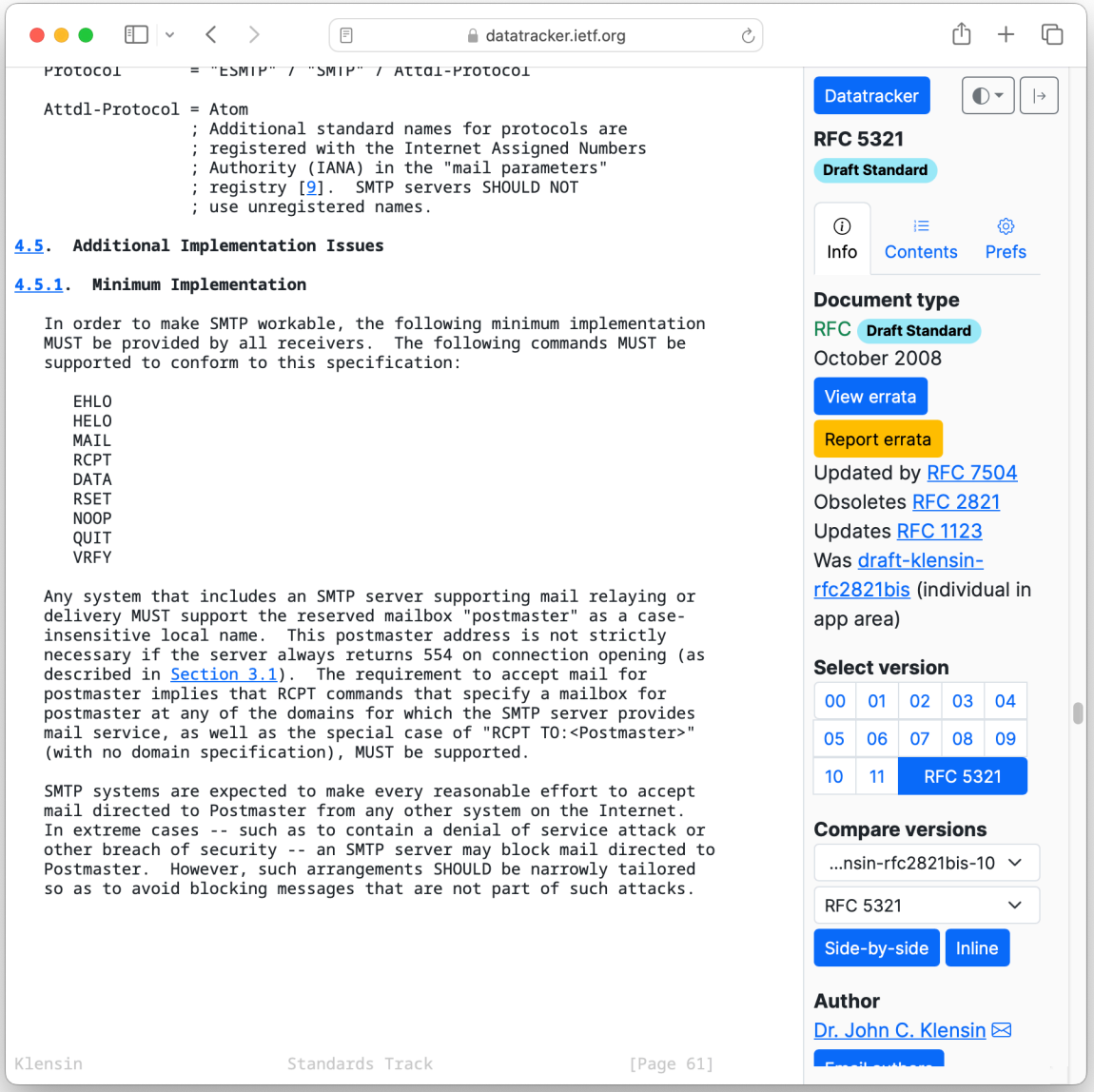
- SMTP is old and insecure
- Easy to spoof and forge emails
- Hard to maintain
- ➡️ Your email server can be used for spam and can be blocked
- ➡️ We will use a mock server to simulate an email server

A focus on the SMTP protocol

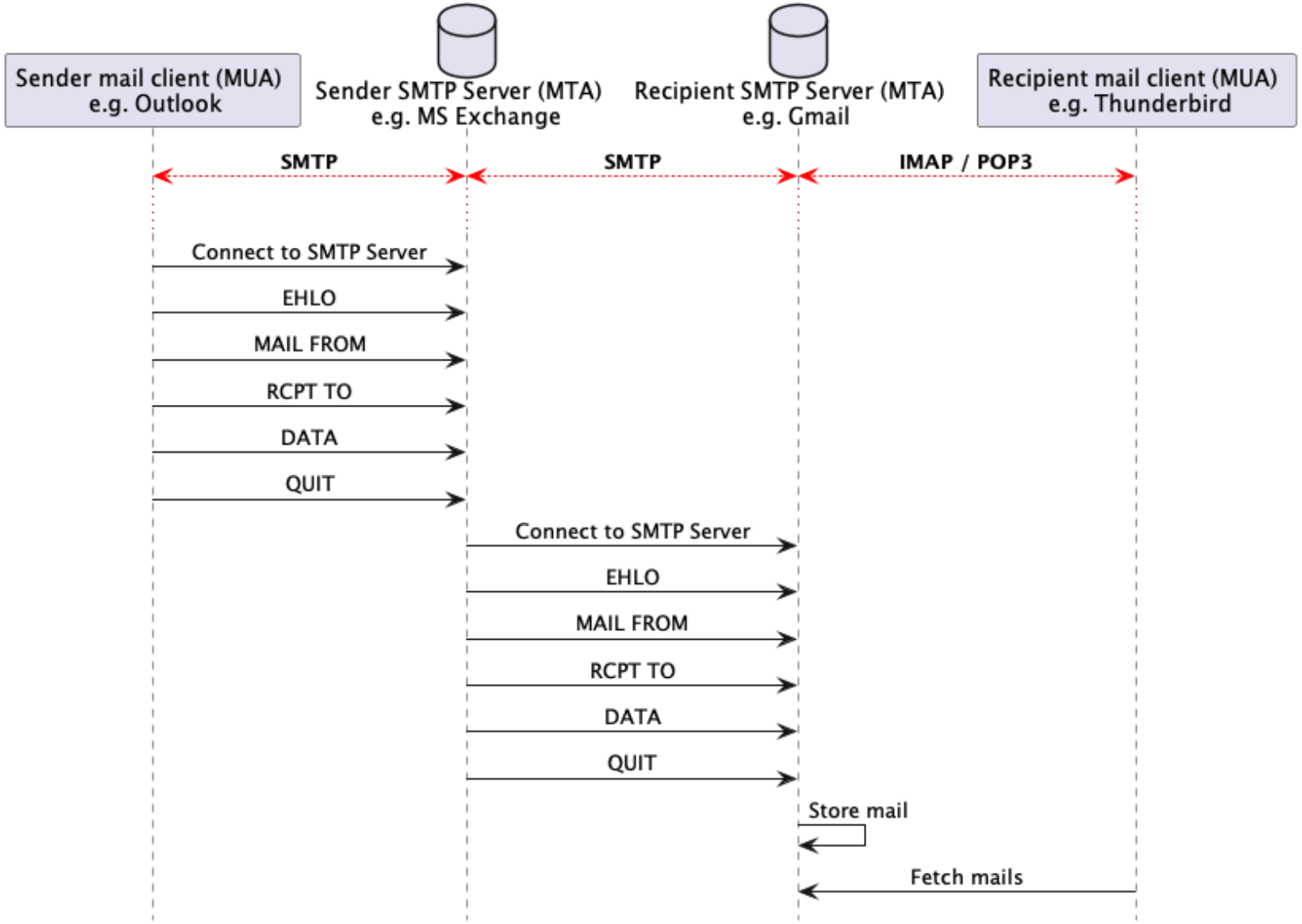
More details for this section in the course material. You can find other resources and alternatives as well.

A focus on the SMTP protocol

- SMTP is a text-based protocol
- Messages are sent by the client to the server
- The server responds with a status code
- The client can send the next command



- `HELO` / `EHLO`
- `MAIL FROM`
- `RCPT TO`
- `DATA`
  - `Subject:`
  - `From:`
  - `To:`
  - End by `.`
- `QUIT`

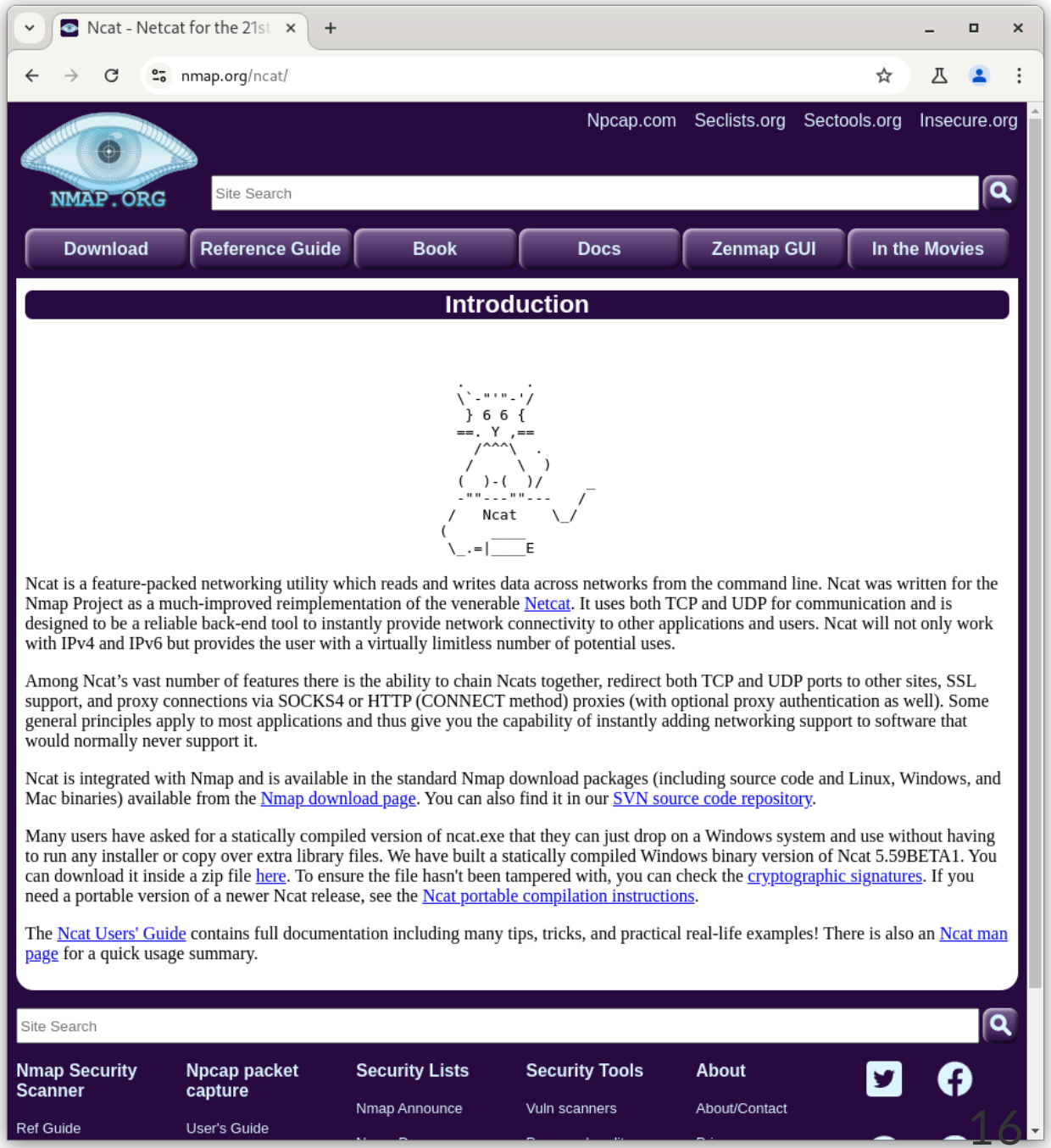


ncat

More details for this section in the course material. You can find other resources and alternatives as well.

ncat

- ncat is network utility for reading from and writing to network connections
- It is used to connect to a remote server (SMTP, HTTP, ...)
- We will use it to interact with a SMTP server



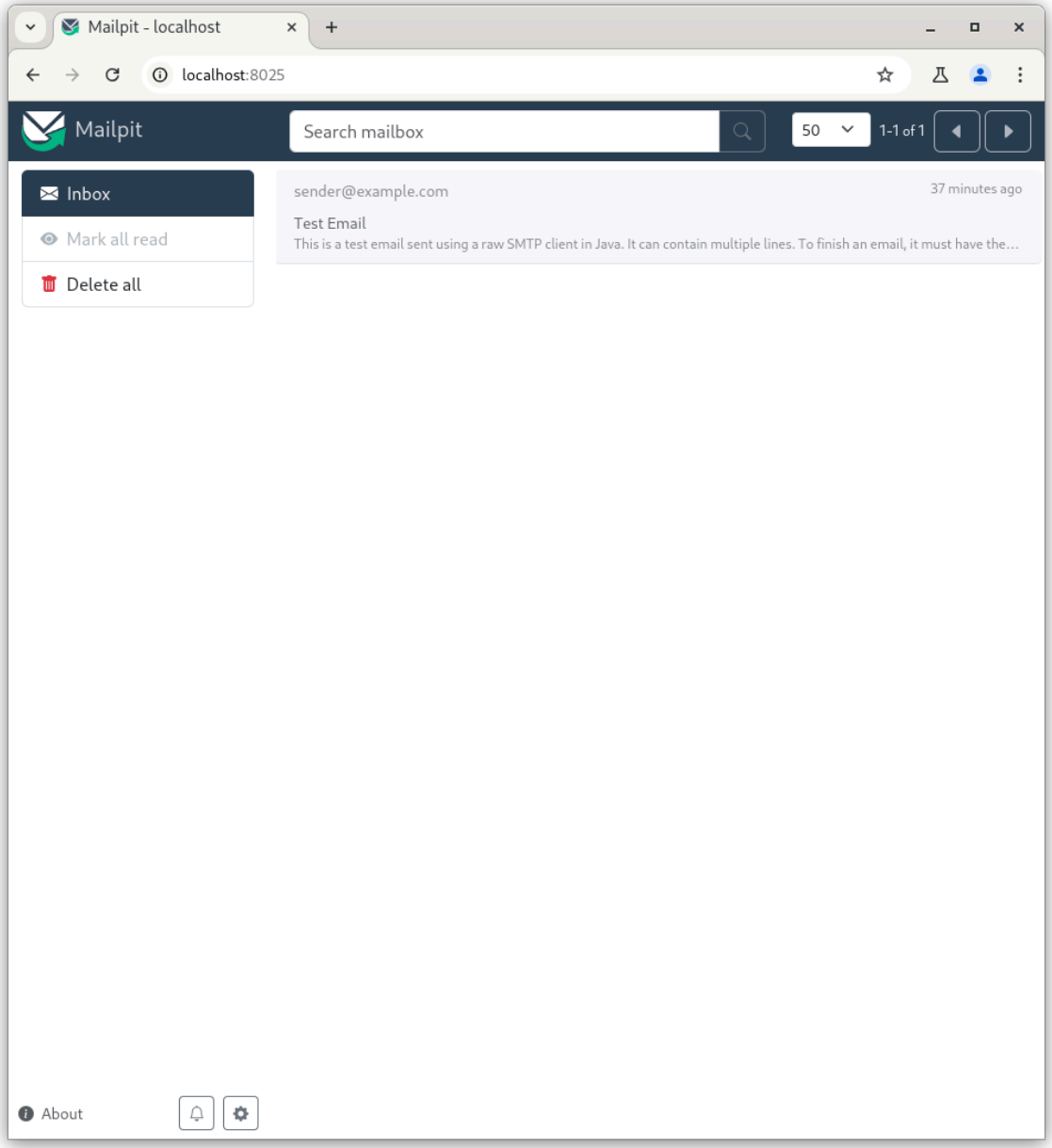
Questions

Do you have any questions?

Practical content

What will you do?

- Install and configure ncat
- Start a SMTP server with Docker Compose
- Send an email with ncat to the SMTP server
- Send an email with Java to the SMTP server



Now it's your turn!

- Read the course material.
- Do the practical content.
- Ask questions if you have any.

➡️ Find the course on GitHub.

Do not hesitate to help each other! There's no need to rush!

Finished? Was it easy? Was it hard?

Can you let us know what was easy and what was difficult for you during this chapter?

This will help us to improve the course and adapt the content to your needs. If we notice some difficulties, we will come back to you to help you.

➡️ GitHub Discussions

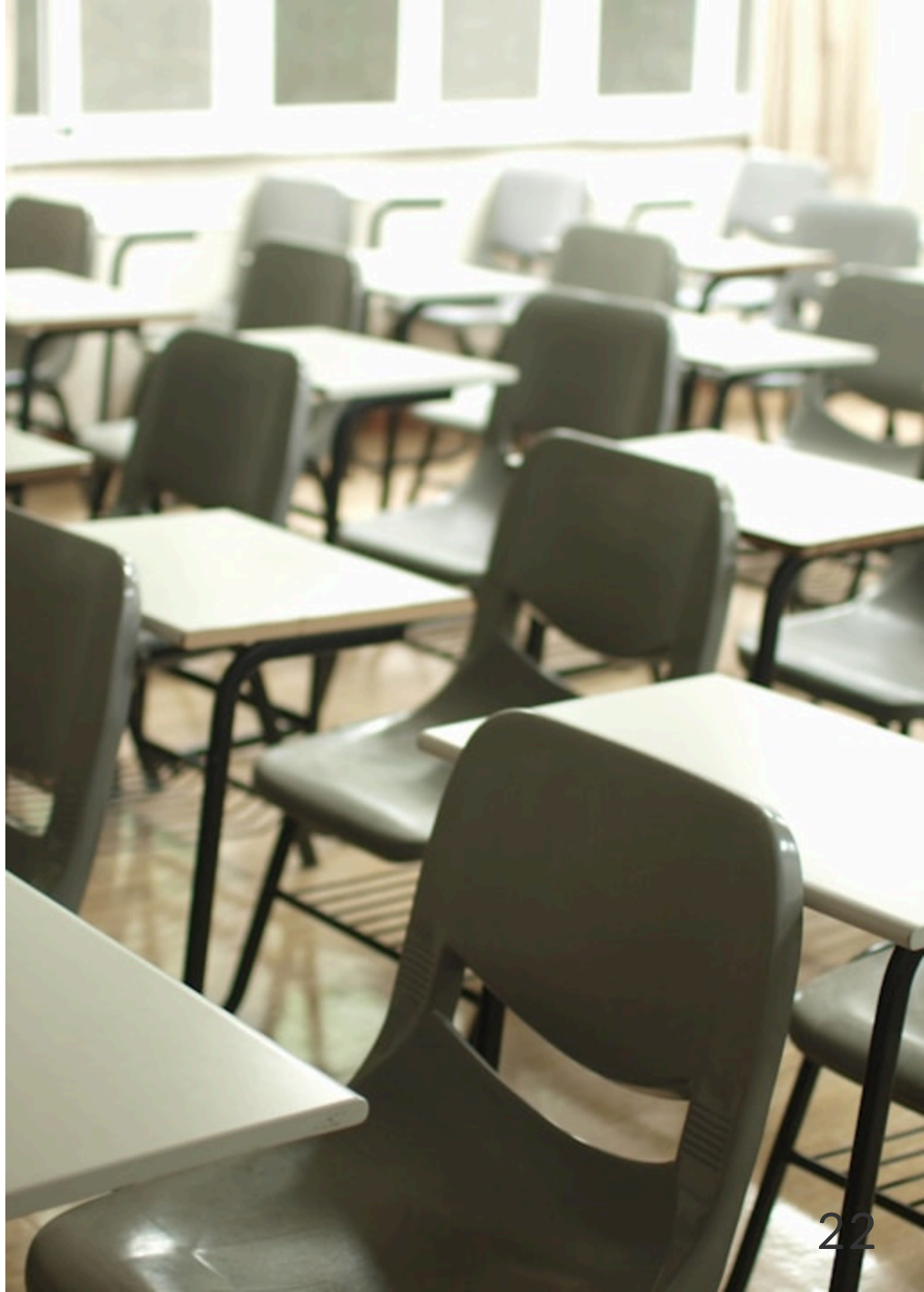
You can use reactions to express your opinion on a comment!

What will you do next?

We are arriving at the end of the second part of the course.

An evaluation will be done to check your understanding of all the content seen in this second part.

More details will be given in the next chapter.



Sources

- Main illustration by Joanna Kosinska on Unsplash
- Illustration by Aline de Nadai on Unsplash
- Illustration by Nik on Unsplash
- Illustration by MChe Lee on Unsplash