

Module Five:

SMTP with Python

Grading Criteria

Total Points: 20 points

In this lab, you will be writing a simple dictionary-based password cracker. Hopefully, this helps illustrate how scary easy it can be to use a dictionary to crack simple passwords.

- ☐ **[2.5 points]** Your submission is labeled as “cyb404_module05_lab00_[nau_id]_[lastname]_[firstname].zip.” For example, if I were to submit a file, it would be labeled as cs460_module14_lab00_mv668_vigil-hayes_morgan.zip. **FAILURE TO COMPLY WITH THIS STEP CAN LEAD TO A ZERO GRADE.**
- ☐ **[2.5 points]** Your submission files are in the correct formats as specified.
 - ☐ [1 points] Password cracker code is all contained in a file called smtp_spammer.py
 - ☐ [1.5 points] There is a comment for every functional unit of code that details the purpose of the code.
- ☐ **[15 points]** Code correctly takes in a Google username, password, and target email address and sends an email to that address.
 - ☐ [2.5 points] File runs using command: python3 smtp_spammer.py -t [target email] -l [Gmail login] -p [Gmail password]
 - ☐ [2.5 points] There are no runtime errors
 - ☐ [5 points] Screenshot of all SMTP packets generated by your SMTP SPAM mailer.
 - ☐ [5 points] Screenshot of an email sent by your SMTP SPAM mailer to your NAU or personal inbox.

Part 1: Create an automatic SPAM emailer

Start by reading through the smtplib API to get an understanding of how it works.

<https://docs.python.org/3/library/smtplib.html>

The process of sending an email normally involves opening one’s client of choice, clicking new, and then clicking send. Behind the scenes, the client connects to the server, possibly logs in, and exchanges information detailing the sender, recipient, and the other necessary data. The Python library, smtplib, will handle this process in your program. You will create a Python email

client to use to send SPAM emails to your target. This client will be very basic but will make sending emails simpler for Module 13.

The starter script is comprised of two functions, `sendMail()` and `main()`. `sendMail()` is a function that takes in parameters like a destination address, subject, and message and then uses the `smtplib` package to craft and send an email. You will follow the `#TODO` comments in the starter script to help identify which functionality you need to implement using the `smtplib` package. `Main()` is a simple function that parses commandline arguments. You can modify some of the variables in `main` to create more compelling subjects and messages.

For this lab, you will use the Google Gmail SMTP server; you will need to create a Google Gmail account to use this script or modify the settings. You can test email functionality by running a local SMTP debugging server, using the `smtpd` module that comes pre-installed with Python. Rather than sending emails to the specified address, it discards them and prints their content to the console. Running a local debugging server means it's not necessary to deal with encryption of messages or use credentials to log in to an email server.

You can start a local SMTP debugging server by typing the following

```
python -m smtpd -c DebuggingServer -n localhost:1025
```

When you have your SMTP SPAM mailer working, turn on Wireshark and capture packets being sent from your mailer. Add a screenshot of the captured SMTP packets below:

[SCREENSHOT GOES HERE]

The screenshot displays the Wireshark network traffic capture interface. The top menu bar includes File, Edit, View, Go, Capture, Analyze, Statistics, Telephony, Wireless, Tools, and Help. The toolbar contains various icons for packet capture and analysis. The packet list pane shows five captured packets, all of which are SMTP packets. The packet details pane shows the structure of the first packet, including the envelope and message body. The packet bytes pane shows the raw data of the first packet.

No.	Time	Source	Destination	Protocol	Length	Info
69	8.359311	142.250.141.108	192.168.1.192	SMTP	106	S: 220 smtp.gmail.com ESMTP j3sm2527248
78	9.277539	192.168.1.192	142.250.141.108	SMTP	86	C: ehlo CMP4955.nau.froot.nau.edu
80	9.348024	142.250.141.108	192.168.1.192	SMTP	222	S: 250-smtp.gmail.com at your service,
81	9.348453	192.168.1.192	142.250.141.108	SMTP	64	C: STARTTLS
83	9.443407	142.250.141.108	192.168.1.192	SMTP	84	S: 220 2.0.0 Ready to start TLS

The packet details pane shows the structure of the first packet, including the envelope and message body. The packet bytes pane shows the raw data of the first packet.

Simple Mail Transfer Protocol: Protocol | Packets: 160 · Displayed: 5 (3.1%) · Dropped: 0 (0.0%) | Profile: Default

Try sending an email to your NAU account or your personal email. Take a screenshot of the email sent by the SMTP SPAM mailer as it appears in your inbox:

