

Project 3-1: Using OpenPuff Steganography

Estimated Time: 30 minutes

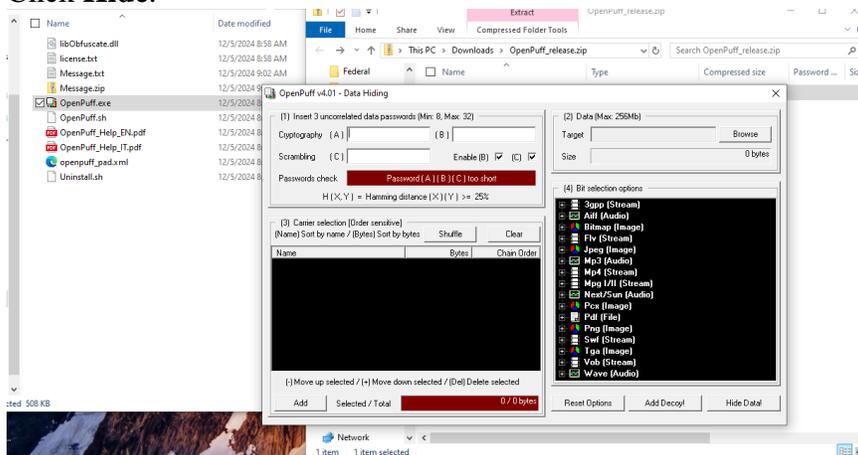
Objective: Explore steganography.

Description: Unlike cryptography, which scrambles a message so that it cannot be viewed, steganography hides the existence of the data. In this project, you will use OpenPuff to create a hidden message.

1. Use your web browser to go to **embeddedsd.net/OpenPuff_Steganography_Home.html**. (It is not unusual for websites to change the location of where files are stored. If the URL above no longer works, open a search engine and search for “OpenPuff.”)
2. Click **Manual** to open the OpenPuff manual. Save this file to your computer. Read through the manual to see the different features available. Return to the home page when finished.
3. Click **Download binary for Windows/Linux** to download the program. A page will appear asking for payments; however, click the **.ZIP** link to download the program for evaluation without submitting a payment.
4. Click **Screenshot** to view a screen capture of OpenPuff. Right-click this image and save it as **OpenPuff_Screenshot.jpg** on your computer. This will be the carrier file that will contain the secret message.

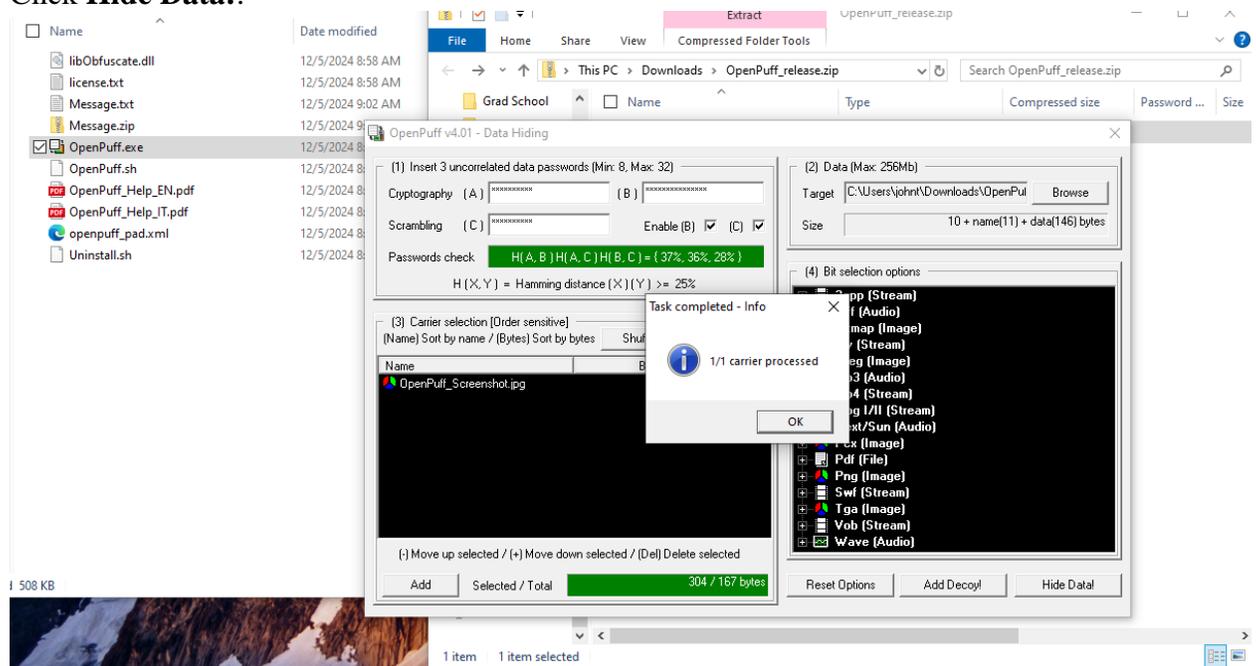
Note: For added security, OpenPuff allows a message to be spread across several carrier files.

5. Navigate to the location of the download and uncompress the OpenPuff zip file on your computer.
6. Now create the secret message to be hidden. Open Notepad and enter **This is a secret message**.
7. Save this file as **Message.txt** and close Notepad.
8. Create a zip file from the **Message** file. Navigate to the location of this file through File Explorer and right-click it.
9. Click **Compress to ZIP file (Windows 11)** or click **Send to** and select **Compressed (zipped) folder (Windows 10)** to create the zip file.
10. Navigate to the OpenPuff folder and double-click **OpenPuff.exe**.
11. Click **Hide**.

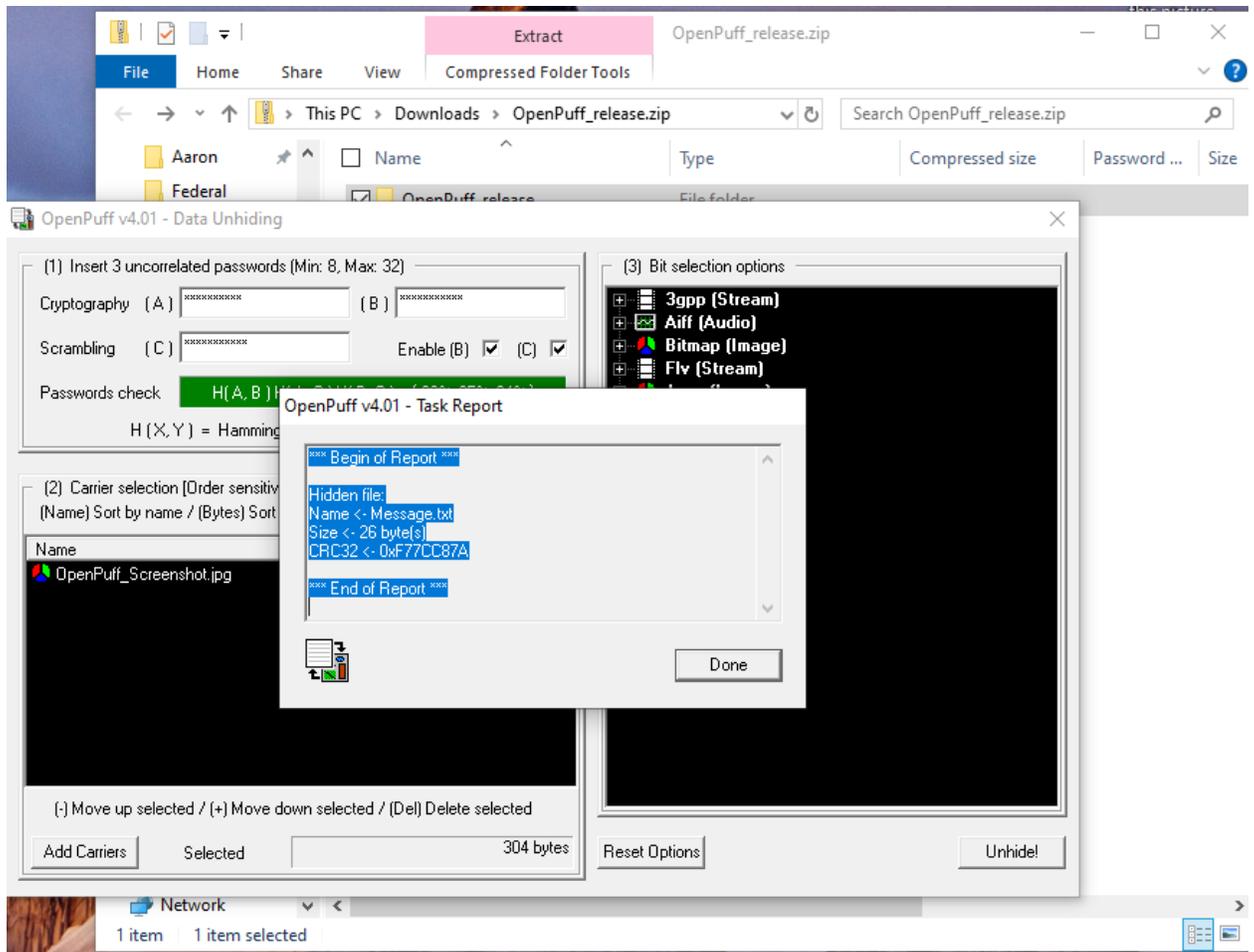


Note: Under Bit selection options, note the wide variety of file types that can be used to hide a message.

12. Under (1), create three unrelated passwords and enter them into **Cryptography (A)**, **(B)**, and **(C)**. Be sure that the **Scrambling (C)** password is long enough to turn the **Password check** bar from red to green.
13. Under (2), locate the message to be hidden. Click **Browse** and navigate to the file **Message.zip**. Click **Open**.
14. Under (3), select the carrier file. Click **Add** and navigate to **OpenPuff_Screenshot.jpg**.
15. Click **Hide Data!**.

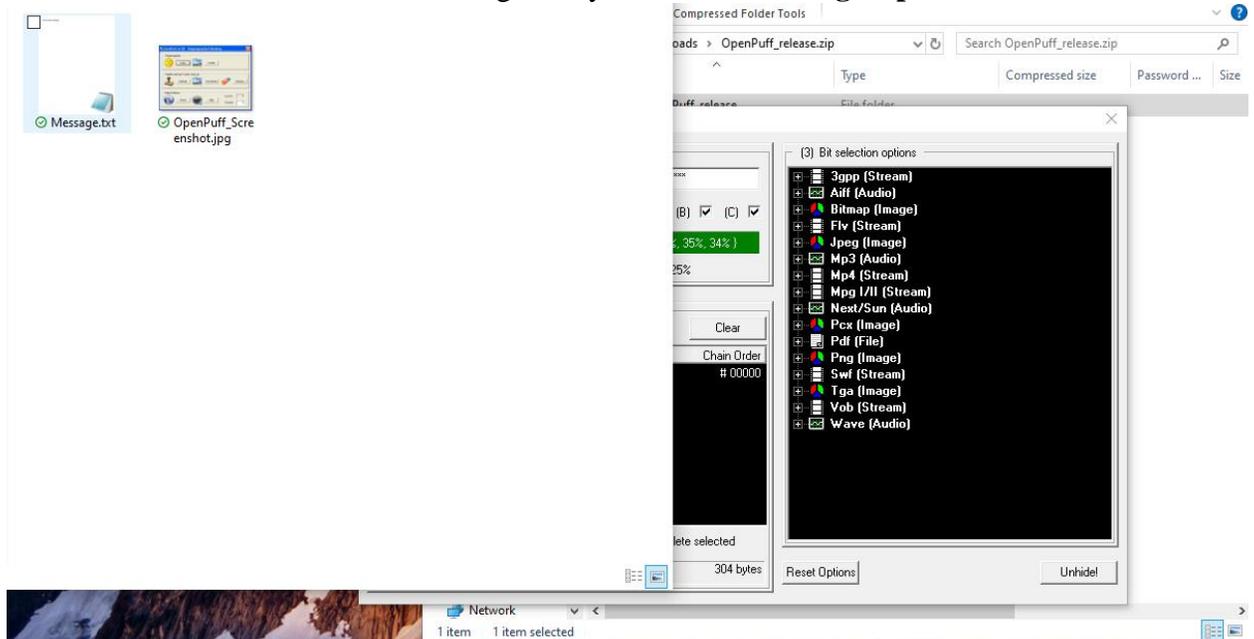


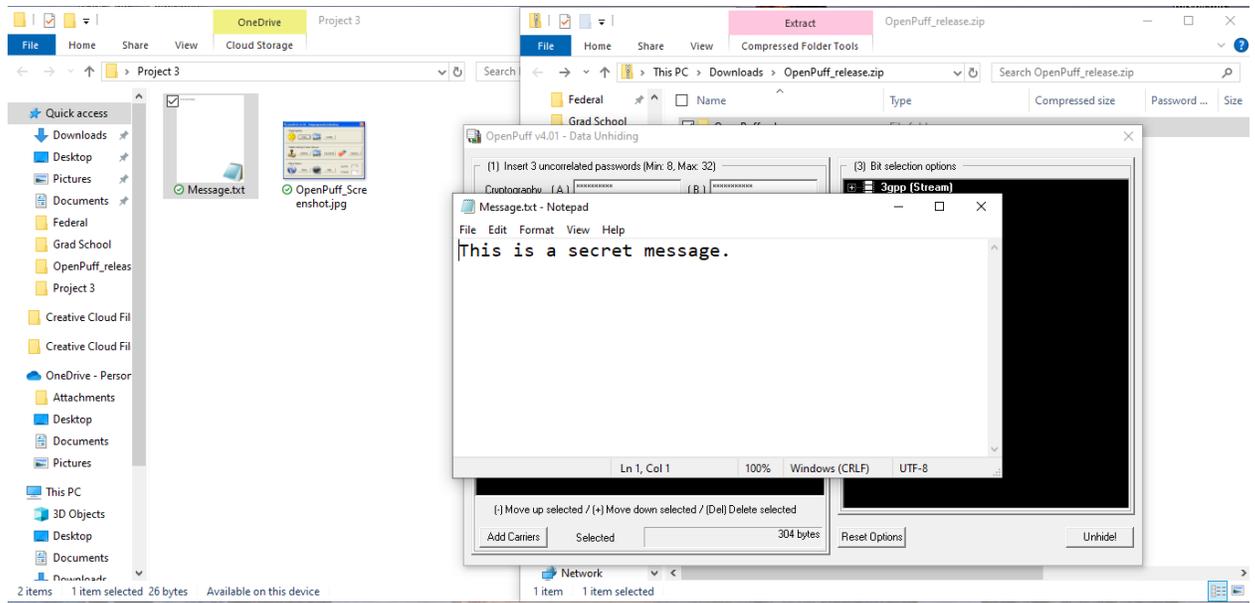
16. Navigate to a different location from that of the carrier files and click **OK**.
17. After the processing has completed, navigate to the location of the carrier file that contains the message and open the file. Can you detect anything different with the file now that it contains the message? **No, I cannot detect anything different.**
18. Now uncover the message. Close the OpenPuff Data Hiding screen to return to the main menu.
19. Click **Unhide!**.
20. Enter the three passwords.
21. Click **Add Carriers** and navigate to the location of **Carrier1** that contains the hidden message.
22. Click **Unhide!** and navigate to a location to deposit the hidden message. When it has finished processing, click **OK**.



23. Click **Done** after reading the report.

24. Go to the location of the hidden message and you will see **Message.zip**.





25. Close OpenPuff and close all windows.

Criteria	Meets Requirements	Needs Improvement	Incomplete
Content	The assignment clearly and comprehensively addresses all questions in the assignment. 15 points	The assignment partially addresses some or all questions in the assignment. 8 points	The assignment does not address the questions in the assignment. 0 points
Organization and Clarity	The assignment presents ideas in a clear manner and with strong organizational structure. The assignment includes appropriate content, coverage of facts, arguments, and conclusions. 10 points	The assignment presents ideas in a mostly clear manner and with some organizational structure. The assignment includes appropriate content, coverage of facts, arguments, and conclusions. 7 points	The assignment does not present ideas in a clear manner or with a strong organizational structure. The assignment includes some appropriate content, but coverage of facts, arguments, and conclusions are not logically related and consistent. 0 points
Research	The assignment is based upon appropriate and adequate data collection and analysis of results from the activity or research from academically reliable sources. 5 points	The assignment is based upon adequate data collection and includes some analysis of results from the activity or research from academically reliable sources. 3 points	The assignment is not based upon appropriate data collection and includes no analysis of results from the activity or research from academically reliable sources. 0 points
Grammar and Spelling	The assignment has two or fewer grammatical and spelling errors. 5 points	The assignment has three to five grammatical and spelling errors. 3 points	The assignment has more than five grammatical and spelling errors, is incomplete, or is unintelligible. 0 points