

DF Assignment 6: Fergus File Carving

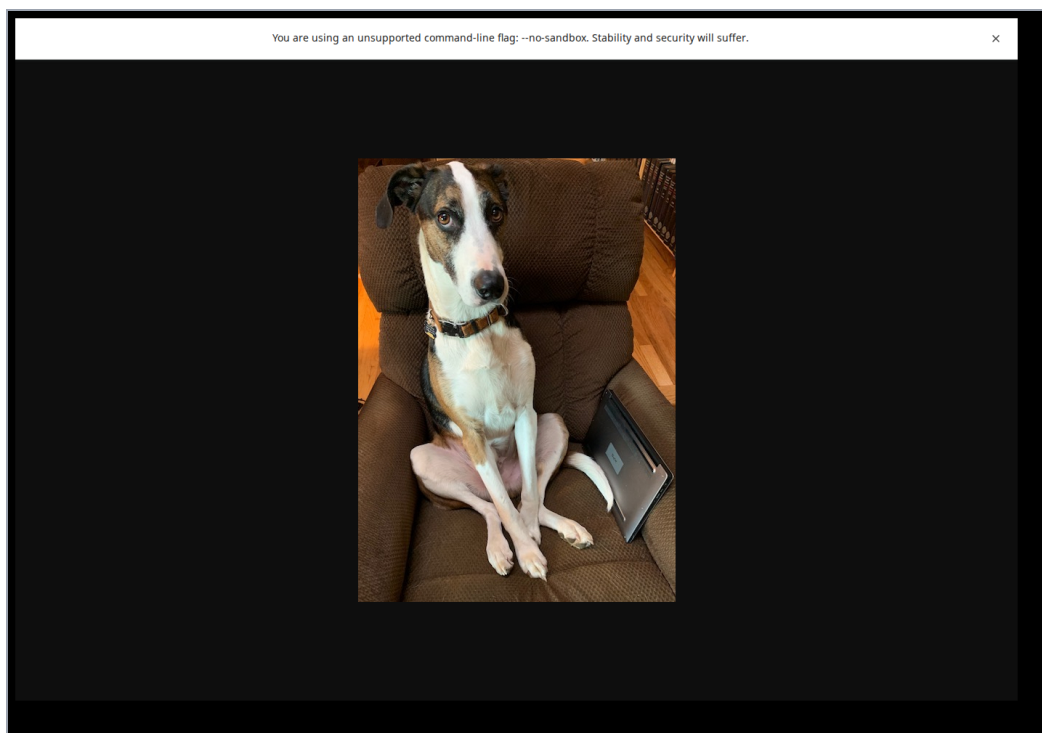
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Method

I opened the provided Fergus image and checked the end of the file in hex using GHex. I looked for the normal JPEG end marker, FF D9. I then checked the bytes after that marker for another file signature.

I found FF D9 at offsets 310,297–310,298. The next bytes, starting at offset 310,299, were %PDF-, which is the beginning of a PDF file. I carved everything from offset 310,299 to the end of the original image into a separate PDF. I used file and pdftinfo to check that the recovered file was a real PDF.



What I found in hex

The red boxes below show the two signatures used for carving. The JPEG file ends at FF D9. Right after it, the PDF file begins with %PDF-. This means extra data was added after the JPEG had already ended.

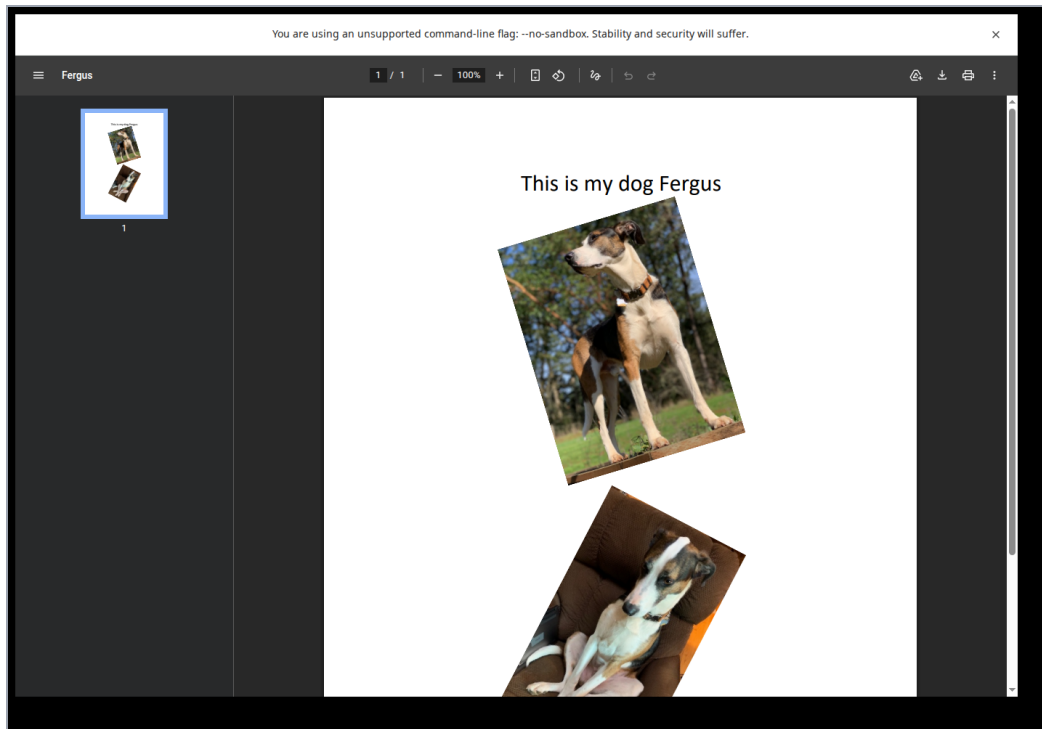


File comparison

File	Size	What I found
Original image	523,648 bytes	JPEG image, 437 × 611 pixels. It displays the Fergus picture, but it also has extra data after the normal JPEG ending.
Carved image part	310,299 bytes	Valid JPEG image. This is the visible dog picture.
Carved hidden file	213,349 bytes	Valid one-page PDF. Its text says, "This is my dog Fergus."

Recovered hidden file

After carving the PDF, I opened it in Chromium. It opened normally as a one-page PDF, so the data after the JPEG end marker was not random data. It was a separate hidden PDF file.



What this means

The original file was not only a JPEG. It had a PDF appended after the JPEG end marker. Looking at the file signatures made it possible to find the boundary and carve the PDF out of the image.

BTW: Fergus is really cute!

Draft for review only. This file has not been submitted to Canvas.