

Tool Validation Report File Carving

PhotoRec
Version 7.2

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Khyrenz Ltd

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Executive Summary

PhotoRec version 7.2 was run in its default configuration against the test image Khyrenz-FileCarvingImage-USB-logical-2GB-formatted.dd^[1].

The below table is a summary of the test files that PhotoRec carved from this image.

| File Type | Number of Test Files | Exact match | Usable match | Not found | False positive | Invalid file |
|--------------|----------------------|---------------|--------------|--------------|----------------|--------------|
| 7z | 5 | 5 | | | | |
| AVI | 5 | 5 | | | | |
| BMP | 6 | 5 | 1 | | | |
| DOC | 4 | 4 | | | | |
| DOCX | 4 | 4 | | | | |
| GIF | 5 | 5 | | | | |
| JPEG | 7 | 2 | | 5 | | |
| MOV | 5 | 5 | | | | |
| MP3 | 5 | 4 | | 1 | | 1 |
| MP4 | 6 | 6 | | | | |
| PDF | 6 | 6 | | | | |
| PNG | 6 | 6 | | | | |
| PPT | 3 | 3 | | | | |
| PPTX | 3 | 3 | | | | |
| TIFF | 5 | | 5 | | | |
| WAV | 6 | 6 | | | | |
| WMV | 5 | 2 | | 3 | | |
| XLS | 3 | 3 | | | | |
| XLSX | 3 | 3 | | | | |
| ZIP | 5 | 5 | | | | |
| Total | 97 | 82 | 6 | 9 | 0 | 1 |
| Percentage | | 84.54% | 6.19% | 9.28% | | |

As this table shows, 84.54% of the test files were recovered exactly; the SHA1 file hashes were a match to the original files. In total, 90.73% of the original files were recovered in a usable state and could be successfully viewed, with the remaining 9.28% of the original files not carved.

Eight of the original test files were not found within the image by PhotoRec. These were all JPEG or WMV file formats.

Introduction

Khyrenz Ltd is a Digital Forensic consultancy based in the UK. We provide this report to document our tool validation process against PhotoRec version 7.2.

Scope

This report documents the results obtained by testing the file carving tool PhotoRec, version 7.2, against the raw image file: Khyrenz-FileCarvingImage-USB-logical-2GB-formatted.dd. This image file, as well as a full list of files contained within deleted space in this image, are provided at: <https://www.khyrenz.com/resources/>.

PhotoRec was run on a Windows 10 Professional 21H2 system and the default configuration was used.

Measuring Test Results

How well the tool performs against expected results is categorized as follows:

1. Exact match: Number of carved files that match on SHA1 file hash to an original test file
2. Usable match: Number of carved files that can be successfully opened and viewed, and appear similar to an original test file, so can be reasonably determined to be a 'usable' version of an original
3. Not found: No carved files match the hash or appear similar to any original files
4. False positive: A carved file is a valid file and can be opened/viewed, but is not similar to an original file (for example, may be an embedded file within an original file)
5. Invalid file: A carved file that cannot be opened or viewed

Test Data

Test Image Creation Process

A selection of test files of varying file formats was collected or generated, and then copied onto a USB device, which had been formatted to contain a 2GB FAT16 volume. This volume was subsequently re-formatted using the built-in Windows 'quick format' process, in order to remove filesystem metadata.

A raw logical image of the USB device volume was generated using FTK Imager 4.2.0.13^[2].

Test File Summary

A summary of test files added to the USB before it was re-formatted is provided below. A more detailed list of individual files is provided in Appendix 1 - Test Files to be Carved.

| File Type | Number of Test Files |
|--------------------|----------------------|
| 7z | 5 |
| AVI | 5 |
| BMP | 6 |
| DOC | 4 |
| DOCX | 4 |
| GIF | 5 |
| JPEG | 7 |
| MOV | 5 |
| MP3 | 5 |
| MP4 | 6 |
| PDF | 6 |
| PNG | 6 |
| PPT | 3 |
| PPTX | 3 |
| TIFF | 5 |
| WAV | 6 |
| WMV | 5 |
| XLS | 3 |
| XLSX | 3 |
| ZIP | 5 |
| Grand Total | 97 |

Test Results

The table below shows details regarding the files carved from the test image by PhotoRec.

| Type | Filename | SHA1 | Exact match | Usable match | Not found | False positive | Invalid file |
|------|---------------------------------|--|--------------|--------------|-----------|----------------|--------------|
| 7z | AVI-7z | fd4d1be9e8ffec39701d358898fed10437b0561b | f1102408.7z | | | | |
| 7z | BMP.7z | e13b931da505c1c51ed6653273de8d9d2df67dcc | f1143240.7z | | | | |
| 7z | DOC-XLS-PPT.7z | edb13fe1559ba71696bb309840bfcf0022228799 | f1214344.7z | | | | |
| 7z | GIF.7z | a70caf5187b383aa5364cfc97b5db8287fa3aa54 | f1228232.7z | | | | |
| 7z | JPEG.7z | 4cceb50966356b852883b9925fcc9e58f410fa2a | f1249608.7z | | | | |
| AVI | 1280.avi | 8351e1bd6f08fe3419907140edd6fcbf00acc46e | f1271304.avi | | | | |
| AVI | Bubble Turning Into Ice.avi | 85bc9cafcacdd41f9b81ace58bd33fba0c432c7d | f1293320.avi | | | | |
| AVI | file_example_AVI_1920_2_3MG.avi | 573400d5d649e6ce8d9c02723e70618a17cd631f | f1311048.avi | | | | |
| AVI | file_example_AVI_480_750kB.avi | a188ed66e68f77729b8cfac92913427ab6b1677f | f1315528.avi | | | | |
| AVI | sample-avi-file.avi | 246eecb4053487a61914510389ec300bdaf7f3c6 | f1317000.avi | | | | |
| BMP | GRN.BMP | b367e7e0d95e6f1bd769f39bc0b5e2e7d4a6bb62 | f0000648.bmp | | | | |

| Type | Filename | SHA1 | Exact match | Usable match | Not found | False positive | Invalid file |
|------|--|--|----------------------------|--------------|-----------|----------------|--------------|
| BMP | MARBLES.BMP | eec5e6afdd264d6ff867d038aa274c4bc42619b4 | f0000840.bmp | | | | |
| BMP | RAY.BMP | e44237a11ee0d4b1cb63e1876dc4040b805e43b6 | | f0009224.bmp | | | |
| BMP | sample_5184×3456.bmp | bf6c6aa681f20a1dd561bad7945d441d771b418a | f0012040.bmp | | | | |
| BMP | Small Sample BMP Image File Download.bmp | 1eb09379dfb4bc35511aa5a1db83e652c5c64604 | f0117064.bmp | | | | |
| BMP | Yellow_star.bmp | 4f2e9da3e1a467fe0182d05d7accdd28ee7f76fb | f0119048.bmp | | | | |
| DOC | file-sample_1MB.doc | 8f3498bfbe75fb34e809fc7ced3f4cc6f4acc92c | f0120264.doc | | | | |
| DOC | SampleDOCFile_200kb.doc | 0f1e886f7399fe033c3190bcda7927550c22da8e | f0137224.doc | | | | |
| DOC | SampleDOCFile_500kb.doc | e9e798cac0a97648c95c21cfa9545659d6d0c2a3 | f0137672.doc | | | | |
| DOC | USB connection artifacts.doc | 4665ec3e161f882f1430f862d7a14e6b12ddf6ec | f0147720_USB_artifacts.doc | | | | |
| DOCX | 15-MB-docx-file-download.docx | 00da85c39ff564d6fc34b0449323a2ef253de8fc | f0147976.docx | | | | |
| DOCX | file-sample_500kB.docx | 9a0881226460bf5d0ea17b29a843c0320b9dd11e | f0216328.docx | | | | |
| DOCX | sample-docx-file-for-testing.docx | 37537e74599278cd26c2a29237cfe067e237f8d | f0232648.docx | | | | |
| DOCX | Using WSL.docx | 3661e7dd597f5931a494335a643513f0198efb6f | f0240392.docx | | | | |

| Type | Filename | SHA1 | Exact match | Usable match | Not found | False positive | Invalid file |
|------|--|--|--------------|--------------|-----------|----------------|--------------|
| GIF | giphy (1).gif | a6768bff9c6d5c9cbc37ce55bf432109f321fab9 | f0240520.gif | | | | |
| GIF | giphy (2).gif | d0012d8bf6f633972049e917ede588880d416b95 | f0248968.gif | | | | |
| GIF | giphy.gif | 799521e3a568a270b6259fa7c1565d7adec96c18 | f0258696.gif | | | | |
| GIF | How+do+i+computer+i+decided+to+try+my+hands_81418e_4707807.gif | fd2911bff16a8522b7f07a0ecalaeb08292b1b4f | f0259272.gif | | | | |
| GIF | undefined - Imgur.gif | 2c3f083d36904cc56f8c46cffb64108943d8d45a | f0260808.gif | | | | |
| JPEG | file_example_JPG_500kB.jpg | 25472d494500707b4510868df469352dc7cd1845 | f0262152.jpg | | | | |
| JPEG | IMG_2375.JPG | 967cac602f8e01eaf614bee93b8b0c850f22936d | | | ✓ | | |
| JPEG | IMG_3385_cropped.jpg | 5fb543b4c8037b48c48fadb8a39f408046c6f7ee | | | ✓ | | |
| JPEG | IMG_3973.JPG | e5f6d316d896db29eabb073db8022eb2edc7d2fe | | | ✓ | | |
| JPEG | IMG_3977.JPG | df58316a3b334379b88dbc41b1313a952810bd45 | | | ✓ | | |
| JPEG | istockphoto-1304263738-170667a.jpg | 1febe282f23e1a15ac100358eb2b700212eee44b | | | ✓ | | |
| JPEG | photo-1533450718592-29d45635f0a9.jfif | f096a046c3692ab714c28b267f94f4efe9a7c22b | f0283080.jpg | | | | |

| Type | Filename | SHA1 | Exact match | Usable match | Not found | False positive | Invalid file |
|------|-------------------------------------|--|-------------------|--------------|-----------|----------------|--------------|
| MOV | 720.mov | ac16247bc6746661d19eb5832b5b3eed397d97a0 | f0284104_ftyp.mov | | | | |
| MOV | Cloud Formation Video.mov | a5c0fbd44b6352161e5b6f2aa26f00d5888a3951 | f0295176_ftyp.mov | | | | |
| MOV | file_example_MOV_480_700kB.mov | 682963a12b9b0742651e486a5f697fa949f9daf2 | f0321352_ftyp.mov | | | | |
| MOV | sample_960x400_ocean_with_audio.mov | faa748ae6d2a31e21e4d65a0bd17e425affed954 | f0322760_ftyp.mov | | | | |
| MOV | sample-mov-file.mov | 126fc405911d33832f88d5dd2fc3942e9a71e896 | f0351048_ftyp.mov | | | | |
| MP3 | file_example_MP3_700KB.mp3 | dae94d2ae419b398c977f27f4190680715ae10c3 | f0385352.mp3 | | | | |
| MP3 | Kalimba.mp3 | ba795c011958b7c8c628abba468bd762beda403e | | | ✓ | | |
| MP3 | sample3.mp3 | 787cc2c7ef51d56d9118d723229d8fdafdbefad5 | f0403336.mp3 | | | | |
| MP3 | sample4.mp3 | e3f539fd64c27bcb8f6fc68486761b6b1d16549a | f0406664.mp3 | | | | |
| MP3 | Symphony No.6 (1st movement).mp3 | 9663ba6ca1d35c2ac59e94d51775ce775e518dac | f0414344.mp3 | | | | |
| MP3 | | | | | | | f0386888.mp3 |
| MP4 | file_example_MP4_1920_18MG.mp4 | a8ddbcbacc224b427f5b7ca14bdf41b692291730 | f0437192.mp4 | | | | |
| MP4 | giphy360p (1).mp4 | 7a65df084f0400e89fac78f247a76fc4b45d851c | f0472072.mp4 | | | | |

| Type | Filename | SHA1 | Exact match | Usable match | Not found | False positive | Invalid file |
|------|---|--|---|--------------|-----------|----------------|--------------|
| MP4 | giphy360p.mp4 | c578124221db590a00bb507202e2dbdb765dcc2 | f0472520.mp4 | | | | |
| MP4 | sample_1280x720_surfi ng_with_audio.mp4 | 406ecad499e84370fa8bfd3db88aa548eeddc3e1 | f0493512.mp4 | | | | |
| MP4 | sample_960x540.mp4 | 1ae8b2fcca5b37d8a0d6afe21a0ed9757cf78cbc | f0633672.mp4 | | | | |
| MP4 | sample-mp4-file.mp4 | bfe8feaec39f112dfcc53bbc98alc17309e0f941 | f0472904.mp4 | | | | |
| PDF | file-example_PDF_1MB.pdf | cec8ad914b1e9db83626b98e8d98512616975fdf | f0636360_In_eleifend_velit_vitae_liber o_sollicitudin_euismod.pdf | | | | |
| PDF | file-sample_150kB.pdf | 6703901978dcb3dbf2d9915e1d3e066cfe712b0a | f0638408_In_eleifend_velit_vitae_liber o_sollicitudin_euismod.pdf | | | | |
| PDF | pdf.pdf | c1f95108a34228535a9262085e784d7c3e27fc68 | f0638728_PDF.pdf | | | | |
| PDF | PinePhone_Data_Locations_Cheatsheet_khedley.pdf | 074e4fec07c65977f9e0281bae45377ebe800bd3 | f0639624.pdf | | | | |



| Type | Filename | SHA1 | Exact match | Usable match | Not found | False positive | Invalid file |
|------|--|--|--|--------------|-----------|----------------|--------------|
| PDF | PinePhone_Poster_khe dley.pdf | a403c9c57dff103b1893 d27f1efe05bc9fb9b | f0640072_Mi crosoft_Wor d_PinePhone _Poster_khe dley.pdf | | | | |
| PDF | sample.pdf | bfd009f500c057195ffde 66fae64f92fa5f59b72 | f0642376.pdf | | | | |
| PNG | 2cd43b_16d40260a2274 e6fb87d101c321eac17_ mv2.png | 32b7bf753e866e0d7b4 1419af529ab3clebe3aa 3 | f0642504.pn g | | | | |
| PNG | 2cd43b_daa95a985dde 42a3af5a63b597f45ac9_ mv2.png | 045d49e8c7f4184ef19a6 9122f58aaa431f44e6a | f0644104.pn g | | | | |
| PNG | pngwing.com (1).png | cc5bf259f661d72b5ca7 8b9e6f58efb3eeafee28 | f0644360.pn g | | | | |
| PNG | pngwing.com.png | 8317e78a842bc9fdbbf3 c83e66326693a489fe3d | f0650312.pn g | | | | |
| PNG | transparent-maple-leaf- 5f8ecldd91fa41.575661 2016031912615979.png | db0e388e61bf72e5742f edb5389e6ecf90f07372 | f0651464.pn g | | | | |
| PNG | transparent-owl-icon- autumn-icon- 60b5ed32573f44.58760 30416225354743574.pn g | 29b523ab7c3dd585430 e13f383293bcb84d7749 d | f0657608.pn g | | | | |
| PPT | file_example_PPT_1MB. ppt | 3d30846c0c62832fd05d 1c424fb650cf4da6ae23 | f0122312.ppt | | | | |
| PPT | file_example_PPT_250k B.ppt | cb8ea4114148bc57e73 17b3d0aa72ebe53dbe3 86 | f0124360.ppt | | | | |



| Type | Filename | SHA1 | Exact match | Usable match | Not found | False positive | Invalid file |
|------|---|---|------------------------------------|--------------|-----------|----------------|--------------|
| PPT | PinePhone Forensics.ppt | 74485b034c11b8c57d7c3a372e97a34adf02aa44 | f0126280_Pin ePhone_Fore nsics.ppt | | | | |
| PPTX | 160930-artificial-intelligence-template-16x9.pptx | 4203a60c4b88f7aad96720be8d5171e2afac10e | f0213832.ppt x | | | | |
| PPTX | pptx1.pptx | c666363ec2d45b7alc911427f7690c1bb6313c2a | f0217608.ppt x | | | | |
| PPTX | pptx2.pptx | c3f3e076c62eee7bf82ed32325faa0d5f79f1596 | f0220872.ppt x | | | | |
| TIFF | CCITT_1.TIF | a21eef750984d91aaddb a931361bbebe44a23568 | | f0659272.tif | | | |
| TIFF | file_example_TIFF_10MB.tiff | 837ae56fd74b69427b7b9511f1065616ffbc3b9e | | f0659336.tif | | | |
| TIFF | FLAG_T24.TIF | 4c06fdc1b38c4283835b8f89687390042f84a92b | | f0679176.tif | | | |
| TIFF | Sample-Tiff-File-download-for-Testing.tiff | 3c560462efd9f4182b0da5c3192258384390424c | | f0679304.tif | | | |
| TIFF | Tiff-Image-File-Download.tiff | dd85696006a32f8f7fa25755f8cef99c8150196f | | f0679496.tif | | | |
| WAV | BabyElephantWalk60.wav | b816c31a23ae448bb0890f5221f256a90d0e9745 | f0713928.wa v | | | | |
| WAV | bird_caw2.wav | 49f1e127edbcef4adf8ad89a297a8adca5735b63 | f0713928.wa v | | | | |
| WAV | crickets.wav | fb7ece704403a47692b6c2625324d2b11764ed6d | f0719240.wa v | | | | |
| WAV | Fanfare60.wav | 762d3a658519190f4b5f1374964f959d419cf875 | f0719688.wa v | | | | |



| Type | Filename | SHA1 | Exact match | Usable match | Not found | False positive | Invalid file |
|------|--------------------------------|---|---------------|--------------|-----------|----------------|--------------|
| WAV | file_example_WAV_5MG.wav | 40955508715da2d5bd78546fc8ed9edcca07100e | f0724872.wav | | | | |
| WAV | taunt.wav | 2988a818ebd6a373ca37ecd0a0bf9123880c5758 | f0735112.wav | | | | |
| WMV | 1280.wmv | 814a49657d5e01a0f171634ddebcb664c98a8a6ec | | | ✓ | | |
| WMV | file_example_WMV_480_1_2MB.wmv | 1c4d2e7cce26714dcda87cc52fbca695b377b389 | | | ✓ | | |
| WMV | sample_3840x2160.wmv | 6ee26e2c8d98aa6d3e62dc323ec48e03ba392a2b | f0777096.wmv | | | | |
| WMV | sample-wmv-file.wmv | a59d51d161b52196aebde4f9c1585c206a9b08a3 | | | ✓ | | |
| WMV | Video2.WMV | 66d457ecfcb8ee65c9f841f77ae737ab91aa11c | f0842568.wmv | | | | |
| XLS | file_example_XLS_10.xls | e0cdb9c8a7da39f9787729345fd9bd617d02d539 | f0124872.xls | | | | |
| XLS | file_example_XLS_5000.xls | 3a0d4a8ecb77244d1580b15cb9f0766c8317b073 | f0124936.xls | | | | |
| XLS | USB_artifacts.xls | 39a4a8f0a789578d55951d3fc3e00a5ec86d6b16 | f0147848.xls | | | | |
| XLSX | file_example_XLSX_1000.xlsx | 0dce77a811e9f631913c88e1b04391a868fcc93d | f0217416.xlsx | | | | |
| XLSX | file_example_XLSX_50.xlsx | c94997094ad00f9f38017fd94ald44a1241003b6 | f0217544.xlsx | | | | |



| Type | Filename | SHA1 | Exact match | Usable match | Not found | False positive | Invalid file | |
|---------------|--------------------|--|-----------------------------|--------------|-----------|----------------|--------------|----------|
| XLSX | sample3.xlsx | 4c82c22ee2a7478fc0d0ddea5d3c9565ff269520 | f0240328.xlsx | | | | | |
| ZIP | DOCX-XLSX-PPTX.zip | 3bc958d3d36c67342d4a209def63d69a3b9c55ca | f0842824_DOCX_XLSX_PPTX.zip | | | | | |
| ZIP | MOV.zip | d45075b85ebb217305ab6bac10e7f6e9aledceb9 | f0933640_MOV.zip | | | | | |
| ZIP | MP3.zip | 7a144bc05232c3e693669e1ef6121ac3b94d3128 | f1029640_MP3.zip | | | | | |
| ZIP | PDF.zip | a1aa6a40d9161d0dc9fc546c8b239689055cb464 | f1080968_PDF.zip | | | | | |
| ZIP | PNG.zip | 0a342d01ac70cb9cae28252805bceed415f949f9 | f1086280_PNG.zip | | | | | |
| Totals | | | | 82 | 6 | 9 | 0 | 1 |

Appendix 1 - Test Files to be Carved

| Type | Filename | Origin | Size (KB) | SHA1 |
|------|--|---|-----------|--|
| 7z | AVI-7z | Created from AVI folder containing files above | 20,393 | fd4d1be9e8ffec39701d358898fed10437b0561b |
| 7z | BMP.7z | Created from BMP folder containing files above | 35,524 | e13b931da505c1c51ed6653273de8d9d2df67dcc |
| 7z | DOC-XLS-PPT.7z | Created from DOC-XLS-PPT folder containing files above | 6,933 | edb13fe1559ba71696bb309840bfcf0022228799 |
| 7z | GIF.7z | Created from GIF folder containing files above | 10,674 | a70caf5187b383aa5364cfc97b5db8287fa3aa54 |
| 7z | JPEG.7z | Created from JPEG folder containing files above | 10,790 | 4cceb50966356b852883b9925fcc9e58f410fa2a |
| AVI | 1280.avi | https://www.appsloveworld.com/avi-video-clips-free-download/ | 11,006 | 8351e1bd6f08fe3419907140edd6fcbf00acc46e |
| AVI | Bubble Turning Into Ice.avi | https://www.appsloveworld.com/avi-video-clips-free-download/ | 8,850 | 85bc9cafcacdd41f9b81ace58bd33fba0c432c7d |
| AVI | file_example_AVI_1920_2_3MG.avi | https://file-examples.com/index.php/sample-video-files/sample-avi-files-download/ | 2,227 | 573400d5d649e6ce8d9c02723e70618a17cd631f |
| AVI | file_example_AVI_480_750kB.avi | https://file-examples.com/index.php/sample-video-files/sample-avi-files-download/ | 726 | a188ed66e68f77729b8cfa92913427ab6b1677f |
| AVI | sample-avi-file.avi | https://www.learningcontainer.com/sample-avi-video-file-download/ | 8,130 | 246eecb4053487a61914510389ec300bdaf7f3c6 |
| BMP | GRN.BMP | https://www.fileformat.info/format/bmp/sample/index.htm | 85 | b367e7e0d95e6f1bd769f39bc0b5e2e7d4a6bb62 |
| BMP | MARBLES.BMP | https://www.fileformat.info/format/bmp/sample/index.htm | 4,165 | eec5e6afdd264d6ff867d038aa274c4bc42619b4 |
| BMP | RAY.BMP | https://www.fileformat.info/format/bmp/sample/index.htm | 1,407 | e44237a11ee0d4b1cb63e1876dc4040b805e43b6 |
| BMP | sample_5184×3456.bmp | https://filesamples.com/formats/bmp | 52,489 | bf6c6aa681f20ald561bad7945d441d771b418a |
| BMP | Small Sample BMP Image File Download.bmp | https://www.learningcontainer.com/sample-bmp-file-for-testing/ | 977 | 1eb09379dfb4bc35511aa5ald83e652c5c64604 |

| Type | Filename | Origin | Size (KB) | SHA1 |
|------|--|---|-----------|--|
| BMP | Yellow_star.bmp | Created by khedley | 574 | 4f2e9da3e1a467fe0182d05d7accdd28ee7f76fb |
| DOC | file-sample_1MB.doc | https://file-examples.com/index.php/sample-documents-download/sample-doc-download/ | 1,003 | 8f3498bfbe75fb34e809fc7ced3f4cc6f4acc92c |
| DOC | SampleDOCFile_200kb.doc | https://sample-videos.com/download-sample-doc-file.php | 200 | 0f1e886f7399fe033c3190bcda7927550c22da8e |
| DOC | SampleDOCFile_5000kb.doc | https://sample-videos.com/download-sample-doc-file.php | 5,001 | e9e798cac0a97648c95c21cfa9545659d6d0c2a3 |
| DOC | USB connection artifacts.doc | Created by khedley | 42 | 4665ec3e161f882f1430f862d7a14e6b12ddf6ec |
| DOCX | 15-MB-docx-file-download.docx | https://www.learningcontainer.com/sample-docx-file-for-testing/ | 32,913 | 00da85c39ff564d6fc34b0449323a2ef253de8fc |
| DOCX | file-sample_500kB.docx | https://file-examples.com/index.php/sample-documents-download/sample-doc-download/ | 539 | 9a0881226460bf5d0ea17b29a843c0320b9dd11e |
| DOCX | sample-docx-file-for-testing.docx | https://www.learningcontainer.com/sample-docx-file-for-testing/ | 3,818 | 37537e74599278cd26c2a29237cefe067e237f8d |
| DOCX | Using WSL.docx | Created by khedley | 15 | 3661e7dd597f5931a494335a643513f0198efb6f |
| GIF | giphy (1).gif | https://giphy.com/gifs/hatutah-seasame-street-yippers-GsiBgbwZAsWsg | 4,224 | a6768bff9c6d5c9cbc37ce55bf432109f321fab9 |
| GIF | giphy (2).gif | https://giphy.com/gifs/bicycle-besta-howtomob-O7YL1FFrCxXi0 | 4,862 | d0012d8bf6f633972049e917ede588880d416b95 |
| GIF | giphy.gif | https://giphy.com/gifs/internet-pizza-computer-ZH5o2lacOA8Te | 274 | 799521e3a568a270b6259fa7c1565d7adec96c18 |
| GIF | How+do+i+computer+i+decided+to+try+m y+hands_81418e_4707807.gif | https://funnyjunk.com/channel/ponytime/How+do+I+computer/rwwsGej/ | 766 | fd2911bff16a8522b7f07a0ecalaeb08292b1b4f |
| GIF | undefined - Imgur.gif | https://imgur.com/gallery/NVoF3Zi | 611 | 2c3f083d36904cc56f8c46cffb64108943d8d45a |
| JPEG | file_example_JPG_500kB.jpg | https://file-examples-com.github.io/uploads/2017/10/file_example_JPG_500kB.jpg | 543 | 25472d494500707b4510868df469352dc7cd1845 |
| JPEG | IMG_2375.JPG | Created by khedley | 4,264 | 967cac602f8e01eaf614be93b8b0c850f22936d |

| Type | Filename | Origin | Size (KB) | SHA1 |
|------|---------------------------------------|---|-----------|---|
| JPEG | IMG_3385_cropped.jpg | Created by khedley | 138 | 5fb543b4c8037b48c48fadf8a39f408046c6f7ee |
| JPEG | IMG_3973.JPG | Created by khedley | 3,519 | e5f6d316d896db29eabb073db8022eb2edc7d2fe |
| JPEG | IMG_3977.JPG | Created by khedley | 1,725 | df58316a3b334379b88dbc41b1313a952810bd45 |
| JPEG | istockphoto-1304263738-170667a.jpg | https://unsplash.com/s/photos/jpg | 203 | 1febe282f23e1a15ac100358eb2b700212eee44b |
| JPEG | photo-1533450718592-29d45635f0a9.jfif | https://unsplash.com/s/photos/jpg | 450 | f096a046c3692ab714c28b267f94f4efe9a7c22b |
| MOV | 720.mov | https://www.appsloveworld.com/sample-mov-file-download/ | 5,512 | ac16247bc6746661d19eb5832b5b3eed397d97a0 |
| MOV | Cloud Formation Video.mov | https://www.appsloveworld.com/sample-mov-file-download/ | 13,066 | a5c0fbd44b6352161e5b6f2aa26f00d5888a3951 |
| MOV | file_example_MOV_480_700kB.mov | https://file-examples.com/index.php/sample-video-files/sample-mov-files-download/ | 694 | 682963a12b9b0742651e486a5f697fa949f9daf2 |
| MOV | sample_960x400_ocean_with_audio.mov | https://filesamples.com/formats/mov | 17,111 | faa748ae6d2a31e21e4d65a0bd17e425affed954 |
| MOV | sample-mov-file.mov | https://www.learningcontainer.com/mp4-sample-video-files-download/ | 14,123 | 126fc405911d33832f88d5dd2fc3942e9a71e896 |
| MP3 | file_example_MP3_700KB.mp3 | https://file-examples.com/index.php/sample-audio-files/sample-mp3-download/ | 747 | dae94d2ae419b398c977f27f4190680715ae10c3 |
| MP3 | Kalimba.mp3 | https://www.learningcontainer.com/sample-audio-file/ | 8,218 | ba795c011958b7c8c628abbba468bd762beda403e |
| MP3 | sample3.mp3 | https://filesamples.com/formats/mp3 | 1,654 | 787cc2c7ef51d56d9118d723229d8fdafdbefad5 |
| MP3 | sample4.mp3 | https://filesamples.com/formats/mp3 | 3,821 | e3f539fd64c27bcb8f6fc68486761b6b1d16549a |
| MP3 | Symphony No.6 (1st movement).mp3 | https://filesamples.com/formats/mp3 | 11,378 | 9663ba6ca1d35c2ac59e94d51775ce775e518dac |
| MP4 | file_example_MP4_1920_18MG.mp4 | https://file-examples.com/index.php/sample-video-files/sample-mp4-files/ | 17,422 | a8ddbacc224b427f5b7ca14bdf41b692291730 |
| MP4 | giphy360p (1).mp4 | https://giphy.com/explore/download | 198 | 7a65df084f0400e89fac78f247a76fc4b45d851c |



| Type | Filename | Origin | Size (KB) | SHA1 |
|------|--|---|-----------|--|
| MP4 | giphy360p.mp4 | https://giphy.com/explore/download | 185 | c578124221db590a00bb507202e2dbdb765dccc2 |
| MP4 | sample_1280x720_surfing_with_audio.mp4 | https://filesamples.com/formats/mp4 | 70,072 | 406ecad499e84370fa8bfd3db88aa548eeddc3e1 |
| MP4 | sample_960x540.mp4 | https://filesamples.com/formats/mp4 | 1,290 | 1ae8b2fcce5b37d8a0d6afe21a0ed9757cf78cbc |
| MP4 | sample-mp4-file.mp4 | https://www.learningcontainer.com/mp4-sample-video-files-download/ | 10,300 | bfe8feaec39f112dfcc53bbc98a1c17309e0f941 |
| PDF | file-example_PDF_1MB.pdf | https://file-examples.com/index.php/sample-documents-download/sample-pdf-download/ | 1,018 | cec8ad914b1e9db83626b98e8d98512616975fdf |
| PDF | file-sample_150kB.pdf | https://file-examples.com/index.php/sample-documents-download/sample-pdf-download/ | 140 | 6703901978dcb3dbf2d9915e1d3e066cfe712b0a |
| PDF | pdf.pdf | http://www.pdf995.com/samples/pdf.pdf | 424 | c1f95108a34228535a9262085e784d7c3e27fc68 |
| PDF | PinePhone_Data_Locations_Cheatsheet_khedley.pdf | Created by khedley | 204 | 074e4fec07c65977f9e0281bae45377ebe800bd3 |
| PDF | PinePhone_Poster_khedley.pdf | Created by khedley | 1,152 | a403c9c57dff103b1893d27f1efe05bcaf9fbd9b |
| PDF | sample.pdf | http://www.africau.edu/images/default/sample.pdf | 3 | bfd009f500c057195ffde66fae64f92fa5f59b72 |
| PNG | 2cd43b_16d40260a2274e6fb87d101c321eac17_mv2.png | https://www.freepngs.com/dragon-png-images | 787 | 32b7bf753e866e0d7b41419af529ab3c1ebe3aa3 |
| PNG | 2cd43b_daa95a985dde42a3af5a63b597f45ac9_mv2.png | https://www.freepngs.com/dragon-png-images | 101 | 045d49e8c7f4184ef19a69122f58aaa431f44e6a |
| PNG | pngwing.com (1).png | https://www.pngwing.com/en/free-png-zwfuf | 2,955 | cc5bf259f661d72b5ca78b9e6f58efb3eeafee28 |
| PNG | pngwing.com.png | https://www.pngwing.com/en/free-png-byvxs | 548 | 8317e78a842bc9fdbbf3c83e66326693a489fe3d |
| PNG | transparent-maple-leaf-5f8ec1dd91fa41.5756612016031912615979.png | https://www.subpng.com/png-daqbfi/ | 3,048 | db0e388e61bf72e5742fedb5389e6ecf90f07372 |
| PNG | transparent-owl-icon-autumn-icon-60b5ed32573f44.5876030416225354743574.png | https://www.subpng.com/png-iqhv2/ | 794 | 29b523ab7c3dd585430e13f383293bcb84d7749d |



| Type | Filename | Origin | Size (KB) | SHA1 |
|------|---|---|-----------|--|
| PPT | file_example_PPT_1MB.ppt | https://file-examples.com/index.php/sample-documents-download/sample-ppt-file/ | 1,005 | 3d30846c0c62832fd05d1c424fb650cf4da6ae23 |
| PPT | file_example_PPT_250kB.ppt | https://file-examples.com/index.php/sample-documents-download/sample-ppt-file/ | 243 | cb8ea4114148bc57e7317b3d0aa72ebe53dbe386 |
| PPT | PinePhone Forensics.ppt | Created by khedley | 5,446 | 74485b034c11b8c57d7c3a372e97a34adf02aa44 |
| PPTX | 160930-artificial-intelligence-template-16x9.pptx | https://www.free-power-point-templates.com/free-machine-learning-powerpoint-template/ | 1,224 | 4203a60c4b88f7aad96720be8d5171e2afac10e |
| PPTX | pptx1.pptx | https://www.appsloveworld.com/sample-pptx-file/ | 1,618 | c666363ec2d45b7a1c911427f7690c1bb6313c2a |
| PPTX | pptx2.pptx | https://www.appsloveworld.com/sample-pptx-file/ | 5,885 | c3f3e076c62eee7bf82ed32325faa0d5f79f1596 |
| TIFF | CCITT_1.TIF | https://www.fileformat.info/format/tiff/sample/ | 18 | a21eef750984d91aaddba931361bbebe44a23568 |
| TIFF | file_example_TIFF_10MB.tiff | https://file-examples.com/index.php/sample-images-download/sample-tiff-download/ | 9,914 | 837ae56fd74b69427b7b9511f1065616ffbc3b9e |
| TIFF | FLAG_T24.TIF | https://www.fileformat.info/format/tiff/sample/ | 46 | 4c06fdc1b38c4283835b8f89687390042f84a92b |
| TIFF | Sample-Tiff-File-download-for-Testing.tiff | https://www.learningcontainer.com/sample-tiff-file-for-testing/ | 79 | 3c560462efd9f4182b0da5c3192258384390424c |
| TIFF | Tiff-Image-File-Download.tiff | https://www.learningcontainer.com/sample-tiff-file-for-testing/ | 17,155 | dd85696006a32f8f7fa25755f8cef99c8150196f |
| WAV | BabyElephantWalk60.wav | https://www2.cs.uic.edu/~i101/SoundFiles/ | 2,585 | b816c31a23ae448bb0890f5221f256a90d0e9745 |
| WAV | bird_caw2.wav | https://www.wavsource.com/animals/animals.htm | 46 | 49f1e127edbcef4adf8ad89a297a8adca5735b63 |
| WAV | crickets.wav | https://www.wavsource.com/animals/animals.htm | 222 | fb7ece704403a47692b6c2625324d2b11764ed6d |
| WAV | Fanfare60.wav | https://www2.cs.uic.edu/~i101/SoundFiles/ | 2,585 | 762d3a658519190f4b5f1374964f959d419cf875 |
| WAV | file_example_WAV_5MG.wav | https://file-examples.com/index.php/sample-audio-files/sample-wav-download/ | 5,105 | 40955508715da2d5bd78546fc8ed9edcca07100e |
| WAV | taunt.wav | https://www2.cs.uic.edu/~i101/SoundFiles/ | 90 | 2988a818ebd6a373ca37ecd0a0bf9123880c5758 |



| Type | Filename | Origin | Size (KB) | SHA1 |
|------|--------------------------------|---|-----------|---|
| WMV | 1280.wmv | https://www.appsloveworld.com/sample-wmv-video-file-free-download/ | 13,846 | 814a49657d5e01a0f171634ddebcb664c98a8a6ec |
| WMV | file_example_WMV_480_1_2MB.wmv | https://file-examples.com/index.php/sample-video-files/sample-wmv-files-download/ | 1,149 | 1c4d2e7cce26714dcda87cc52fbca695b377b389 |
| WMV | sample_3840x2160.wmv | https://filesamples.com/formats/wmv | 32,726 | 6ee26e2c8d98aa6d3e62dc323ec48e03ba392a2b |
| WMV | sample-wmv-file.wmv | https://www.learningcontainer.com/sample-wmv-video-file-download/ | 5,833 | a59d51d161b52196aebde4f9c1585c206a9b08a3 |
| WMV | Video2.WMV | https://www.lehman.edu/faculty/hoffmann/itc/techteam/video/Video_samples.html | 85 | 66d457ecfcb8ee65c9f841f77ae737ab91aa11c |
| XLS | file_example_XLS_10.xls | https://file-examples.com/index.php/sample-documents-download/sample-xls-download/ | 9 | e0cdb9c8a7da39f9787729345fd9bd617d02d539 |
| XLS | file_example_XLS_5000.xls | https://file-examples.com/index.php/sample-documents-download/sample-xls-download/ | 657 | 3a0d4a8ecb77244d1580b15cb9f0766c8317b073 |
| XLS | USB_artifacts.xls | Created by khedley | 28 | 39a4a8f0a789578d55951d3fc3e00a5ec86d6b16 |
| XLSX | file_example_XLSX_1000.xlsx | https://file-examples.com/index.php/sample-documents-download/sample-xls-download/ | 42 | 0dce77a811e9f631913c88e1b04391a868fcc93d |
| XLSX | file_example_XLSX_50.xlsx | https://file-examples.com/index.php/sample-documents-download/sample-xls-download/ | 8 | c94997094ad00f9f38017fd94a1d44a1241003b6 |
| XLSX | sample3.xlsx | https://filesamples.com/formats/xlsx | 13 | 4c82c22ee2a7478fc0d0dde5d3c9565ff269520 |
| ZIP | DOCX-XLSX-PPTX.zip | Created from DOCX-XLSX-PPTX folder containing files above | 45,381 | 3bc958d3d36c67342d4a209def63d69a3b9c55ca |
| ZIP | MOV.zip | Created from MOV folder containing files above | 47,973 | d45075b85ebb217305ab6bac10e7f6e9aledceb9 |
| ZIP | MP3.zip | Created from MP3 folder containing files above | 25,633 | 7a144bc05232c3e693669e1ef6121ac3b94d3128 |
| ZIP | PDF.zip | Created from PDF folder containing files above | 2,646 | a1aa6a40d9161d0dc9fc546c8b239689055cb464 |
| ZIP | PNG.zip | Created from PNG folder containing files above | 8,002 | 0a342d01ac70cb9cae28252805bceed415f949f9 |

¹ <https://www.khyrenz.com/resources/>

² <https://www.exterro.com/ftk-imager>