

# HDF hologram file creator GUI

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## 1. Introduction

We have decided to use Hierarchical Data Format (HDF) to store hologram image's data and metadata. Before this graphical user interface (GUI) all metadata had to be hard coded to writeHDF.m function. With this GUI it is easier to input old hologram image files (.bmp, .tif, .img and .hol) and hologram's metadata to HDF file. GUI's source code also works as simple example case how to write Matlab code to create HDF files.

GUI's version 0.16 can only create HDF files which contains just one hologram image. Values of hologram image's data can be real or complex. GUI can read all image files which are supported by "imread" function. GUI also supports BIAS's .img file format and NUIM's .hol file format.

Hologram image data can be compressed. GUI's version 0.16 supports only bzip2 compression method. Preview image is not compressed because HDF viewer programs cannot uncompress images by default. Preview images should not be larger than 200 pixels by 200 pixels.

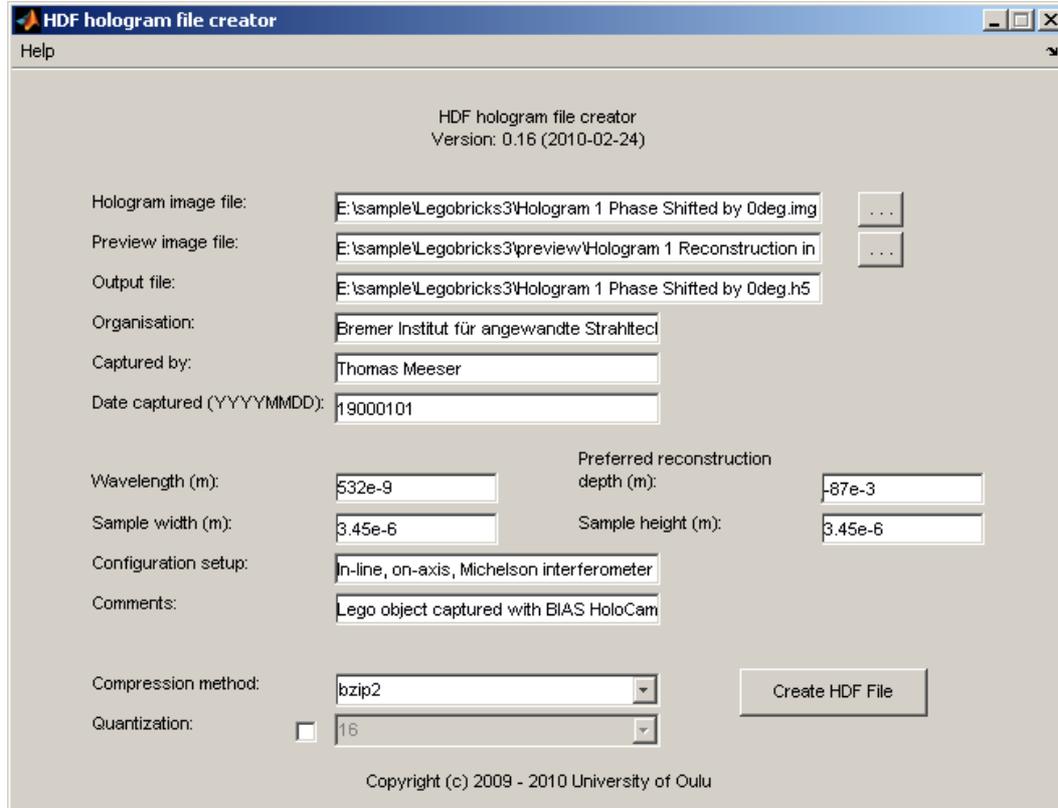


Figure 1. HDF Creator's interface

## 2. Instructions

“Hologram image file” edit box has to contain path to hologram image file. “Preview image file” edit box should contain path to reconstructed hologram image preview file. This file should be small than 50kB, because it will not compressed.

“Output file” edit box has to contain path to file name where HDF file will be created. Rest of edit boxes are for hologram image’s metadata inputs. Wavelength, depth, sample width and sample height values have to be given in meters (not millimeters or micrometers).

First button (from top) gives user a file browser to select hologram image file. Selected file name and path is populated to “Hologram image file” box. Also “Output file” box is populated (if empty) with same path, but different file extension (.h5).

Second button gives user a window to select preview image file. Selected path and file name will be placed in “Preview image file” edit box. Preview image file should not be larger than 200 x 200 pixels (about 40kB).

“Create HDF” button creates output file. Output file will contains hologram image’s data, preview image’s data and all metadata as user has written in edit boxes. Before writing output file, software will verify data so that it can handle all data. All information in edit boxes is also stored in INI file. This INI file is read every time when software starts and software gets last saved information from INI file to edit boxes. Software also compresses hologram image’s data if user has selected compression method.

## 3. Features

HDF creator can handle real and complex valued holograms:

-> Supported hologram image formats:

- 8 bit .bmp and .tiff files.
- Complex and real valued .hol files
- 16 bit real and complex valued .img files (BIAS)
- Maybe some other 8 bit image formats too, probably all image formats that imread() function can read.

List of implemented attributes:

HDF NAME, REAL, WAVELENGTH, CAPTURE INSTITUTION, HEIGHT, WIDTH, SAMPLE WIDTH, SAMPLE HEIGHT, DATE CAPTURED, CAPTURED BY, PREFERRED RECONSTRUCTION DEPTH, SETUP CONFIGURATION, PREVIEW IMAGE, COMPRESSED FILENAME, DECOMPRESSION ALGORITHM, ARRAY TYPE, COMPRESSED FILENAME, DECOMPRESSION ALGORITHM, BYTE STREAM

If your want more attributes software’s source code has to be modified.