

Guide how to use high level HDF file creating functions

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Functions `createHDFfile`, `addHDFGroup`, `addHDFDataset` and `addHDFAttribute` are called high level functions because these are using build-in Matlab functions to create/modify HDF files. These functions are done to help creating HDF files with hologram data.

We have also created example functions which illustrate how to use these high level HDF functions. These functions are placed in “..\examples\” and “..\generateFunctions\” folders. You might have to modify these functions to suite your own purposes.

1. High level HDF functions

Here is short explanation what each function does.

1.1 createHDFfile

This function creates HDF file with defined file name. Created file will contain only one attribute 'HDF NAME' and value of it is defined file name without file extension.

```
createHDFfile(<File Name>)
```

<File Name> = File name with or without path as string.

Example:

```
createHDFfile('file.h5');
```

1.2 addHDFGroup

This function adds new group object to existing HDF file.

```
addHDFGroup(<HDF File Name>, <New Group Name>, <Group Path>)
```

<HDF File Name> = File name with or without path as string.

<New Group Name> = Group's name as string.

<Group Path> (optional)

= Existing HDF group path as string. Default value is '/' (root group)

Example:

```
createHDFfile('c:\file.h5', 'subGroup1', '/group1/');
```

1.3 addHDFDataset

This function adds new dataset object to existing HDF file.

```
addHDFDataset(<HDF File Name>, <Dataset Name>, <Dataset Data>,  
              <Object Path>)
```

<HDF File Name> = File name with or without path as string.

<Dataset Name> = Dataset name as string.

<Dataset Data> = Dataset's data. Can be string or numeric value.

<Object Path> (optional)

= Existing HDF group path as string. Default value is '/' (root group)

Example:

```
createHDFfile('c:\file.h5', 'table', [1,2;2,1], '/group1/object1');
```

1.4 addHDFAttribute

This function adds new attribute for group or dataset object to existing HDF file.

```
addHDFAttribute(<HDF File Name>, <Attribute Name>,  
               <Attribute Value>, <Object Path>, <Object Type>)
```

<HDF File Name> = File name with or without path as string.

<Attribute Name> = Attribute name as string.

<Attribute Value> = Attribute's value. Can be string or numeric value.

<Object Path> (optional)

= Existing HDF object path as string. Default value is '/' (root group)

<Object Type> (optional)

= Define if given object is dataset. Accepted values are 'dataset' and 'group'. Default value is 'group'.

Example:

```
addHDFAttribute('c:\file.h5', 'INFO', 'Some text',  
               '/group1/dataset1', 'dataset');
```

2. Example functions how to use high level HDF functions

2.1 autoGenerateVideo

This function creates HDF hologram video sequence file using information from given INI file and it also implements high level HDF functions introduced above.

This function is example case how to use high level HDF functions. Function might not work for every group of holograms without modification.

```
generateHDFVideo(<INI File>, <Source Folder>, <Destination File>,  
                <Preview Folder>)
```

<INI File> = Ini file which contains instructions.

<Source Folder> (optional)

= Folder which contains hologram data. Default folder is working directory.

<Destination File> (optional)

= Destination HDF file name. Default name 'video.h5'

<Preview Folder> (optional)

= Folder which contains preview images. Default folder <Source Folder>\preview

Example:

```
generateHDFVideo('autoscript.ini', 'c:\hologramData\', 'video.h5');
```

2.2 generatePreviews.m

This function creates preview images for hologram video sequence files using information from given INI file. Size of preview images are 200 x 200 pixels and file format is bmp bitmap.

This function is example case how to use high level HDF functions. Function might not work for every group of holograms without modification.

```
generatePreviews(<INI File>, <Source Folder>, <Destination Folder>)
```

<INI File> = Ini file which contains instructions.

<Source Folder> (optional)

= Folder which contains hologram data.

<Destination Folder> (optional)

= Destination folder where to create preview images. Default '<source folder>\preview'

Example:

```
generateHDFVideo('autoscript.ini', 'c:\hologramData\  
                'c:\hologramData\preview');
```