Edit HDF5 attributes: Demonstration with h5py and h5edit

Some HDF5 applications would like to be able to conveniently edit simple HDF5 attributes so that their HDF5 files can either follow some conventions or meet specific requirements.

One can use HDFView to edit the attributes interactively. However, in order to edit attributes of many files, the command-line tools that can be used to run batch jobs are desirable. This note will show how to use h5edit and h5py to edit HDF5 attributes. ncatted and NcML may also work for netCDF-4 created HDF5 files. However, one needs to be careful to use netCDF-4 tools to modify generic HDF5 files. Some information inside the HDF5 files may get lost.

1) Use h5py

Using h5py is simple. To install and learn how to use h5py, please go to h5py web site at http://code.google.com/p/h5py/. Here is a simple h5py program to edit a string attribute. The HDF5 file can be found under http://www.hdfgroup.org/ftp/HDF5/examples/howto/edit-attribute/tattr.h5. The python code is as follows:

```
file = h5py.File ('tattr.h5')
#file.attrs['attr5']="String Attribute"
file.attrs.modify('attr5',"String Attribute");
#del file.attrs['attr5'];
file.close()
```

You can also create an attribute as follows:

```
file.attrs['attr5']="String Attribute"
```

Delete an attribute is also simple, just do:

```
del file.attrs['attr5'];
```

Be aware, if you use

```
file.attrs['attr5']="String Attribute"
```

h5py will always use the variable length string type.

But if you use

```
file.attrs.modify('attr5',"String Attribute");
```

h5py will keep the original string type. If the original string is a fixed-size string, the modified string will also be a fixed-size string.

One thing to be aware is that h5py will always add a NULL character as the last character of a fixed-size string. HDF5 library will keep whatever the last character in the string. So using h5dump, you may see a string is "longitude". But after modifying with h5py, if your string size is 9 instead of 10, the final string is "longitud".

2) Use h5edit

h5edit downloads and documents can be found under http://www.hdfgroup.org/projects/jpss/jpss_downloads.html

For the current release, MODIFY only works with fixed-size string.

To modify the content of attribute /attr5, one can use

./h5edit -c "MODIFY /attr5 {'String Attribute'};" tattr.h5

One can use DELETE and CREATE to replace MODIFY.

Using the above example with tattr.h5

One can delete the attribute /attr5,

./h5edit -c "DELETE /attr5;" tattr.h5

and then create the same attribute /attr5

./h5edit -c "CREATE /attr5 {H5T_STRING {STRSIZE 17} SCALAR {'String Attribute'}};" tattr.h5

As shown in the above line, creating a string attribute is not as straightforward as h5py. Users need to provide string type, size etc.