May 6, 2024

Python script for removing the “Results” data group from the Plan HDF file

Model input files generated from a Windows HEC-RAS compute are the starting point for setting up a Linux RasUnsteadyFlow compute.

With reference to the HEC-RAS Muncie 1-D & 2-D example problem, the minimum set of input files to the unsteady flow compute files are:

Muncie.b04
Muncie.x04
Muncie.p04.tmp.hdf

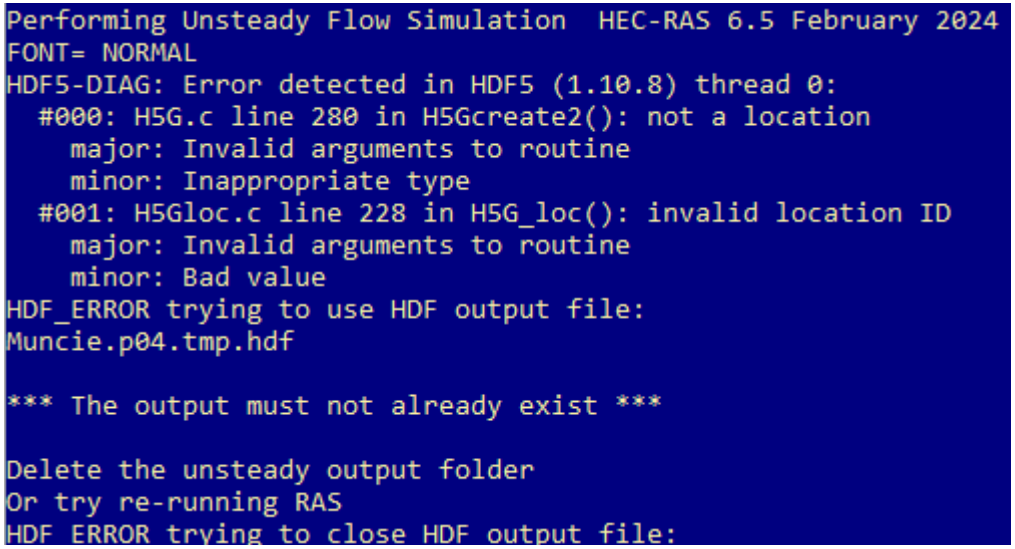
The Muncie.b04 and Muncie.x04 are text files generated by the HEC-RAS GUI in the pre-compute phase. These files will need to have the end of line carriage control characters removed.

The “Muncie.p04.tmp.hdf” file is developed from the Muncie.p04.hdf file generated with the Unsteady Flow compute with the HEC-RAS GUI.

HDF “Results” Data Group

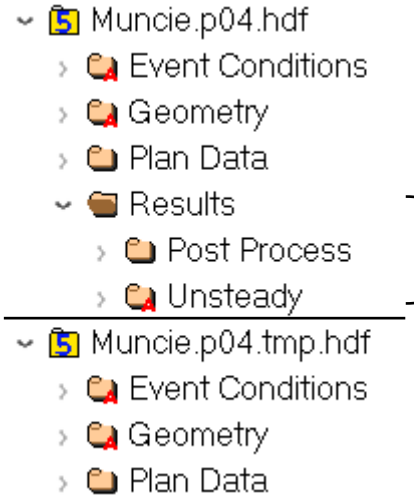
Particularly for 2D runs, the plan hdf file (Muncie.p04.tmp.hdf) is the main source of geometry, hydraulic properties and boundary condition data to the Unsteady Flow program.

The “Results” data group must first be removed from the Muncie.p04.tmp.hdf file. If the Muncie.p04.hdf file from the HEC-RAS GUI compute is simply renamed to Muncie.p04.tmp.hdf, an error will occur when running the Unsteady Flow program:



HDF “Results” Data Group

The “Results” data group in the Plan hdf file is removed using a python script. Below compares the data structure of the hdf files before and after the Results data group is removed.



Results Data Group on the Plan hdf file

Plan tmp.hdf file after the Results data group removed

The python script, “remove_HDF5_Results_Sed.py” is run to create a copy of the plan hdf file, minus the Results data group, and renamed to Muncie.p04.tmp.hdf.

```
C:> python  remove_HDF5_Results_Sed.py  Muncie.p04.hdf
```

remove_HDF5_Results_Sed.py script

The python script removes the results data groups for both unsteady flow and unsteady sediment runs. Currently there is no Linux version of the RasUnsteadySediment program.

remove_HDF5_Results_Sed.py

```
'''
Created on Mar 29, 2019

@author: scott
'''
# This program copies the contents of the plan HDF file produced with an Unsteady
# flow compute, without the Results data group.  This provides the
# *.p01.tmp.hdf file needed for an Unsteady flow run with the rasUnsteady64 program.
#
# updated 22 Jan 2024 to also remove data groups associated with sediment transport
# result computes
#
# To use from Windows,
# C>python remove_HDF5_Results.py myras_system.p01.hdf
#
# Output is myras_system.p01.tmp.hdf
#
import h5py
import sys
from shutil import copyfile
import os

filename = sys.argv[1]

fsource = h5py.File(filename, 'r')
fdest = h5py.File(os.path.splitext(filename)[0] + '.tmp.hdf', 'w')

# copy attributes
for fattr in  fsource.attrs.keys() :
    fdest.attrs[fattr]= fsource.attrs.get(fattr)

# copy groups, except Results and sediment results
for fg in  fsource.keys() :
    if fg == "Results" or fg == "Bed Time Series" or \
        fg == "DSS Time Series" or fg == "Transport Time Series" or \
        fg == "Unsteady Time Series" :
            continue
    else :
        fsource.copy( fg, fdest )

fdest.close()
fsource.close()
```