The error you got in the screenshot you sent me is because of a typo in the code. Open the file located in phantom/src/main/utils\_dumpfiles\_hdf5.f90 and edit **line 975** to the following:

if (got) got\_arrays%got\_iorig = .true.

This file makes sure that PHANTOM formats the output files correctly.

There are some changes than we need to make to the code files so that they run correctly for locally isothermal discs:

**Edit phantom/src/main/eos.f90, line 206**

Delete line 206 and replace it with the following:

ponrhoi = polyk\*((xi-xyzmh\_ptmass(1,isink))\*\*2 + (yi-xyzmh\_ptmass(2,isink))\*\*2 + &

(zi-xyzmh\_ptmass(3,isink))\*\*2)\*\*(-qfacdisc)

This makes sure that we are in the reference frame of the star. The x y and z positions of the star (xyzmh\_ptmass) in the line above are subtracted from the positions of the gas particles.

**Edit phantom/main/utils\_dumpfiles\_hdf5.f90, line 395**

Add the following:

call write\_to\_hdf5(eos\_vars(itemp,1:npart), eos\_vars\_label(itemp), group\_id, error)

This makes sure that the temperature (itemp) is included in the output files.

**Edit phantom/build/Makefile, line 264**

Αdd the following:

ifeq ($(SETUP), grav\_disc\_DV)

# Locally isothermal disc with self-gravity and store temperatures enabled.

DISC\_VISCOSITY=yes

ISOTHERMAL=yes

SETUPFILE= setup\_disc.f90

ANALYSIS= analysis\_disc.f90

GRAVITY = yes

KNOWN\_SETUP=yes

MULTIRUNFILE= multirun.f90

IND\_TIMESTEPS=yes

endif

This is our custom code setup, grav\_disc\_DV. Self gravity and viscosity are turned on. We will use this to setup our simulations with “phantom/scripts/writemake.sh grav\_disc\_DV > Makefile”

**Set environment variables:**

export OMP\_SCHEDULE="dynamic"

export OMP\_STACKSIZE=512M

ulimit -s unlimited

**cd into disc directory and run**

../phantom/scripts/writemake.sh grav\_disc\_DV> Makefile

make SYSTEM=gfortran