SampleIO

Thomas Radke

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Abstract

Thorn **SampleIO** serves as an example for creating your own I/O thorns. Its code is clearly structured and well documented, and implements a very simple and light-weight but fully functioning Cactus I/O method.
Together with the documentation about I/O methods in the *Cactus Users' Guide* and the chapter about thorn **IOUtil** in the *Cactus Thorn Guide* you should be able to use this code and modify/extend it according to your needs.

1 Purpose

Thorn **SampleIO** registers the I/O method `SampleIO` with the Cactus flesh I/O interface. This method prints the data values of three-dimensional, distributed Cactus grid functions/arrays at a chosen location to screen.

The implemented I/O method makes use of the Cactus Hyperslabbing API to obtain the data values to print.

2 SampleIO Parameters

Parameters to control the `SampleIO` I/O method are:

- `SampleIO::out_vars`
  This parameter denotes the variables to output as a space-separated list of full variable and/or group names.
- `SampleIO::point_x, SampleIO::point_y, SampleIO::point_z`
  The location of the data point to output for all variables is given in index coordinates (starting from 0) on a three-dimensional computational grid.
- `SampleIO::out_every`
  This parameter sets the frequency for periodic output. A positive value means to output every so many iterations. A negative value chooses the value of the general `IO::out_every` integer parameter to be taken. A value of zero disables `SampleIO` periodic output.
  The value for `out_every` is used for all variables by default. This

can be overwritten for individual variables by appending an option string to the variable name, like in

```
SampleIO::out_vars = "MyThorn::MyVar[out_every=2]".
```

All parameters are steerable, ie. they can be changed at runtime. The code in thorn **SampleIO** includes the logic to check whether a parameter has been changed since the last output, and how to re-evaluate the I/O parameters.

3 Notes

Like any other I/O thorn should do, **SampleIO** inherits general I/O parameters from thorn **IOUtil**. Therefore this I/O helper thorn must be included in the `ThornList` of a Cactus configuration in order to compile thorn **SampleIO**, and also activated at runtime in the `ActiveThorns` parameter in your parameter file.