

Archiving and Running Bout++ Data

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Ipython

Compare

Edit

Create

Load

Console.py

- File History
- User Notes
- Python Lib Import



Archive

Config.ini

Command Line

Runbout.py
Scanbout.py

'tmp'

Config.ini

- Link to the executable of BOUT example.
- Path to Archive
- Text Editor
- Input Keys, used for error messages, edited by console.py for different BOUT examples.

Console.py

- Lists all files of defined extension in archive with dates and notes. (.inp default)
- Loads, Edits , Creates . Combines an edit & create function to streamline continuation.
- Copies different set groups of files into different archive directories.
- Changes inputs for config.ini

Runbout.py and Scanbout.py

- Loads all files from a chosen archive directory into a temporary folder and runs the BOUT program inside.
- Scanbout is an extension of runbout code and repeatedly runs the code whilst changing 1 or 2 variables by a set increment or percentage.
- For 2 variables they can either be increased in tandem or all permutations of the two variables (Requires variable b to be scanned over small range)
- Every iteration a new folder is created within loaded folder.

A Visual Interface for the archive



Uses adapted code from `console.py`, `runbout.py` and `scanbout.py` within a interface designed to be fully independent of the command line.

Load Change Inputs Output Stream Graphing

	File Path	Date Created	Date Modified	No of Processors	Comments
1	/config3/BOUT.inp	19 Aug 2015 15:21:50	19 Aug 2015 15:21:50	5	Write any useful comments here...
2	/advdiff2/BOUT.inp	19 Aug 2015 11:44:37	19 Aug 2015 11:44:37	No restart files	None
3	/advect1d/BOUT.inp	19 Aug 2015 11:44:30	19 Aug 2015 11:44:30	No restart files	None
4	/config/BOUT.inp	18 Aug 2015 16:47:16	18 Aug 2015 16:47:16	8	changed variable
5	/config2/BOUT.inp	19 Aug 2015 15:01:31	19 Aug 2015 15:01:31	8	set
6	/advdiff/BOUT.inp	20 Aug 2015 10:18:34	20 Aug 2015 10:18:34	No restart files	None
7	/6field-simple/BOUT.inp	19 Aug 2015 11:20:46	19 Aug 2015 11:20:46	No restart files	None

Current Archive Folder = /hwdisks/home/jh1479/python/Archive

Load

Load Change Inputs **Output Stream** Graphing

<p>timing</p> <p>NOUT <input type="text" value="10"/></p> <p>TIMESTEP <input type="text" value="1.00"/></p> <p>MZ <input type="text" value="1"/></p> <p>MXG <input type="text" value="0"/></p>	<p>ddy</p> <p>first <input type="text" value="C2"/></p> <p>second <input type="text" value="C2"/></p> <p>upwind <input type="text" value="W3"/></p>	<p>SOLID</p> <p>diagnose <input type="text" value="true"/></p> <p>Nnorm <input type="text" value="1e20"/></p> <p>Tnorm <input type="text" value="100"/></p> <p>Bnorm <input type="text" value="1.00"/></p> <p>AA <input type="text" value="2.0"/></p> <p>Eionize <input type="text" value="30"/></p> <p>vwall <input type="text" value="1.00"/></p> <p>frecycle <input type="text" value="0.95"/></p> <p>fredistribute <input type="text" value="0.30"/></p> <p>redist_weight <input type="text" value="h(y - pi)"/></p> <p>gaspuff <input type="text" value="0"/></p> <p>dneut <input type="text" value="1.00"/></p> <p>nloss <input type="text" value="1000.0"/></p> <p>fimp <input type="text" value="0.0"/></p> <p>sheath_gamma <input type="text" value="6.5"/></p> <p>atomic <input type="text" value="true"/></p> <p>area <input type="text" value="1"/></p> <p>hyper <input type="text" value="100"/></p> <p>viscos <input type="text" value="-1"/></p>	<p>NVn</p> <p>evolve <input type="text" value="false"/></p>
<p>mesh</p> <p>nx <input type="text" value="1"/></p> <p>ny <input type="text" value="200"/></p> <p>length <input type="text" value="100"/></p> <p>dx <input type="text" value="1"/></p> <p>dy <input type="text" value="length / ny"/></p> <p>ixseps1 <input type="text" value="-1"/></p> <p>ixseps2 <input type="text" value="-1"/></p> <p>Rxy <input type="text" value="1"/></p> <p>Bpxy <input type="text" value="1"/></p> <p>Btxy <input type="text" value="0"/></p> <p>Bxy <input type="text" value="1"/></p> <p>hthe <input type="text" value="1"/></p> <p>sinty <input type="text" value="0"/></p>	<p>All</p> <p>scale <input type="text" value="0.0"/></p> <p>bndry_all <input type="text" value="neumann_o2"/></p>		<p>Pn</p> <p>evolve <input type="text" value="false"/></p> <p>Tstart <input type="text" value="3.5"/></p> <p>scale <input type="text" value="1.00"/></p> <p>function <input type="text" value="start / SOLID:Tnorm"/></p>
<p>solver</p> <p>mxstep <input type="text" value="100000"/></p>	<p>Ne</p> <p>scale <input type="text" value="1"/></p> <p>function <input type="text" value="0.10"/></p> <p>flux <input type="text" value="9e22"/></p> <p>source <input type="text" value="sh:length))*h(pi - y)"/></p>		
	<p>NVi</p> <p>scale <input type="text" value="1"/></p> <p>vtarg <input type="text" value="0.70"/></p> <p>function <input type="text" value="function * y / (2*pi)"/></p> <p>bndry_target <input type="text" value="dirichlet_o2"/></p>		
	<p>P</p> <p>scale <input type="text" value="1"/></p> <p>function <input type="text" value="0.10"/></p>	<p>Nn</p> <p>scale <input type="text" value="1"/></p> <p>function <input type="text" value="0.0"/></p>	

Comments

Write any useful comments here...

Number of Processors:

Write to file

Run Simulation

'Niceness' level: Restart

Run Scanning Simulation

Current Simulation Code File = /hwdisks/home/jh1479/BOUT-dev/examples/bout-solid/solid
 Open File = /hwdisks/home/jh1479/python/Archive/config3/BOUT.inp

Load Change Inputs Output Stream Graphing

Collection of Variables

Collect Data

Additional Collect Variables :

 Collect Variable

Collect From : /hwdisks/home/jh1479/python/Archive/config3

	Name	Source	Trace	Comments
1	ne			[[[1.32588899e+00] [1.32408130e+00]
2	plotdata			<module 'boututils.plotdata' from '/hwdisks/home/jh1...
3	nn			[[[3.90224130e-07] [3.89705264e-07]
4	temp			[[[0.61703402] [0.61704934]
5	collect			<function collect at 0xa6d7668>
6	p			[[[1.63623726e+00] [1.63404703e+00]
7	nvi			[[[-5.70947118e-03] [-1.08350981e-02]

```
Reading from ./BOUT.dmp.2.nc: [[0]-[0]][[2]-[41]] -> [[0]-[0]][[80]-[119]]
Reading from ./BOUT.dmp.3.nc: [[0]-[0]][[2]-[41]] -> [[0]-[0]][[120]-[159]]
Reading from ./BOUT.dmp.4.nc: [[0]-[0]][[2]-[41]] -> [[0]-[0]][[160]-[199]]
```

```
>>> nn= collect("Nn")
mxsub = 1 mysub = 40 mz = 2
```

```
nxpe = 1, nype = 5, npe = 5
```

```
Reading from ./BOUT.dmp.0.nc: [[0]-[0]][[2]-[41]] -> [[0]-[0]][[0]-[39]]
Reading from ./BOUT.dmp.1.nc: [[0]-[0]][[2]-[41]] -> [[0]-[0]][[40]-[79]]
Reading from ./BOUT.dmp.2.nc: [[0]-[0]][[2]-[41]] -> [[0]-[0]][[80]-[119]]
Reading from ./BOUT.dmp.3.nc: [[0]-[0]][[2]-[41]] -> [[0]-[0]][[120]-[159]]
Reading from ./BOUT.dmp.4.nc: [[0]-[0]][[2]-[41]] -> [[0]-[0]][[160]-[199]]
```

```
>>> temp = 0.5*p/ne
```

Command:

Run

Plotting

Load a default input selection

Input of form: variable(t,x,y,z) :

None

Ne

-1

0

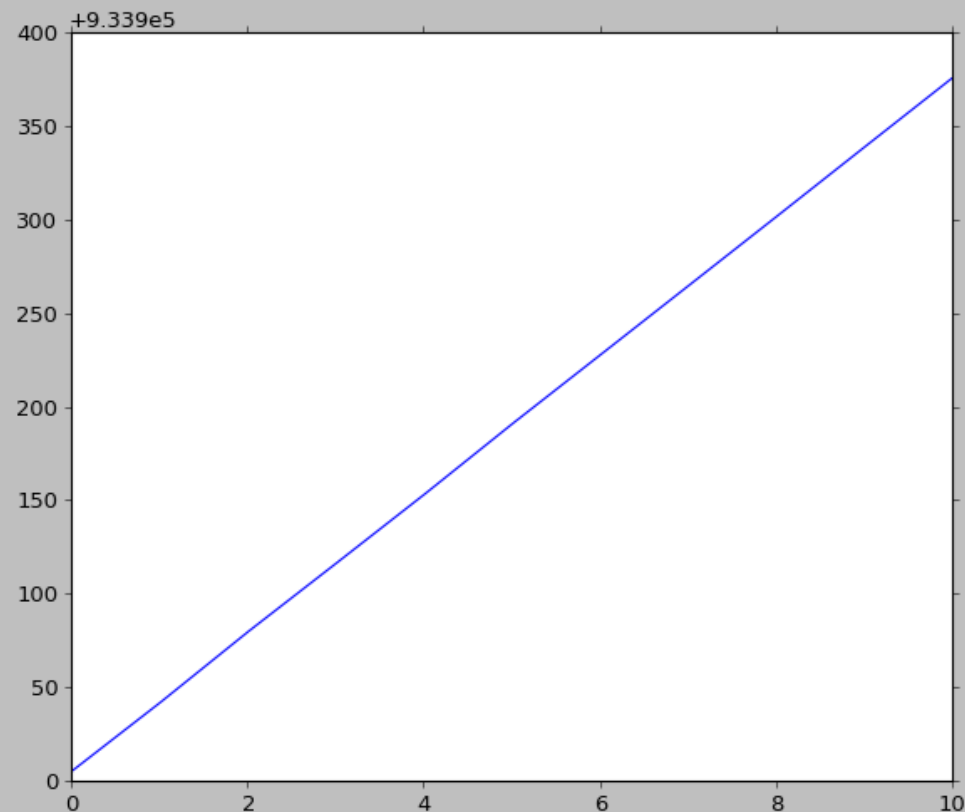
-1

0

Create Graph

Save

Delete

 All All All All

Thank you for listening

Archive Codes are easily sent via email. Also any questions or ideas for improvement of the code can be sent to:

lt724@York.ac.uk

The latest release of BOUTgui can be found on GitHub under the BOUTgui repository -

<https://github.com/joe1510/BOUTgui/releases>