
Quick Installation Notes on SPheRIO – Beta version

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This brief instruction note requires the user to have some basic knowledge of Linux.

1) In the first place, one has to create three directories in the computer, being (a) the root directory containing the source code and object files, (b) a directory for the shell scripts, and (c) a directory to locate the output files. Naturally, one can put everything in the same directory, but this is not a good practice, therefore, it is not recommended. This beta release of SPheRIO predefines the three directories through Linux environment variables¹. In what follows, we assume that the user does not modify the predefinitions and utilizes those default locations.

2) In the home directory, "~/", create two folders "~/source" and "~/debug". Extract the zip file, spherio_beta.zip, into a temporary place. One may notice that it contains three folders "source", "bin" and "debug". Copy everything from the extracted folder "source" into "~/source/". Assign executable property "+x" to shell scripts *.csh in "bin", then copy .server .spherio and *.csh (four files) into "~/bin/". Finally, copy everything from "debug" into "~/debug", so that the directory structure remains unchanged.

3) Define SPheRIO environment variables. This can be done by typing

```
source ~/bin/.server
```

```
source ~/bin/.spherio
```

4) Compile SPheRIO by typing

```
cd $SPO
```

```
make
```

If everything goes well, the executable file "Xellspherio" should be created in the folder ~/source/OBJ/spherio401/

¹ The definition is as follows

(a) \$SRC=~/.source, therefore the folder for source files is \$SPO=\$SRC/SPHERIO/spherio\$SPOVSN=~/.source/SPHERIO/spherio401, the folder for object files is OBJ=\$SRC/OBJ=~/.source/OBJ/ and folder for equation of state is ~/.source/TEOS

(b) \$BIN=~/.bin

(c) \$BUG=~/.debug

One may redefine three different directories simply by modifying the definition of SRC BIN and BUG in .spherio, One may even change the directory structure by modifying the configuration files .spherio and Makefile.

5) To run one event interactively, one may use shs-xellspherio.csh. This can be done by executing²

```
cd $BUG/test.wn
```

```
~/bin/shs-xellspherio.csh auau-xell
```

where "auau-xell" is the common part of the name of the two optns files which indicates the name of collisions. One may type

```
~/bin/shs-xellspherio.csh
```

for a brief description of the usage of the script. This script is dedicated to run events interactively. Besides the information printed out on the screen, *.ztr file contains most of parameters and run-time information. z-*.data contains a list of frozen-out hadrons.

6) To run 2 events in the background, one may use sub-eponexspherio.csh and type

```
cd $BUG/test.wn
```

```
~/bin/sub-eponexspherio.csh auau-xell xell 2
```

where xell indicates explicitly that SPheRIO will be executed in standalone mode. Outputs files will be created in the folder "~/debug/test.wn.1". The tela1.log file stores the output addressing to the screen. This script is designed to run many events in the background. Again a brief description of the usage of this script can be obtained by typing

```
~/bin/sub-eponexspherio.csh
```

7) In the above case, the optns files have been configured to use the initial conditions of wounded nucleons model. To run one event using initial condition provided by the file auau-xell.ico³, one to utilize a different optns setting, the predefined optns file can be found in another folder

```
cd $BUG/test.ico
```

```
~/bin/sub-eponexspherio.csh xell auau-xell
```

This time, hydrodynamic evolution will be carried out based on initial conditions defined by "auau-xell.ico".

² If this does not work, one needs to edit by hand the two script files, and uncomment the following lines.

```
In shs-xellspherio.csh
  set OBJ = "~/source/OBJ"
  set SPOVSN = "401"
In sub-eponexspherio.csh
  set BIN = "~/bin"
```

³ For a detailed description of the data instruction of ico files and of the optns files, please consult the manual.