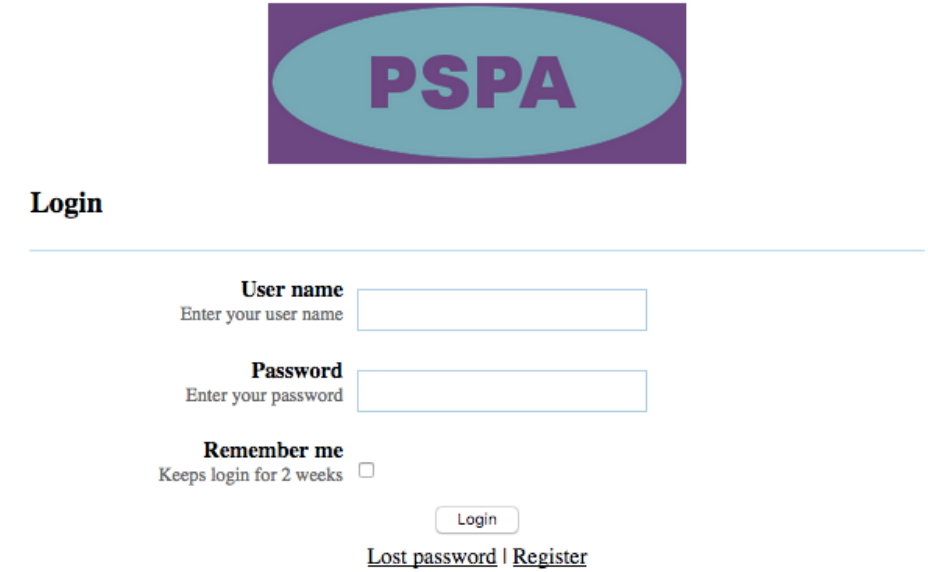
- Here a short demo on how to run the PSPA platform on the LAL server
- To be able to run it please contact us at:

pspa@lal.in2p3.fr

The web interface: login

- Login credentials to be requested
- Server address:

  http://pspa-dev.lal.in2p3.fr/?_=/pspa

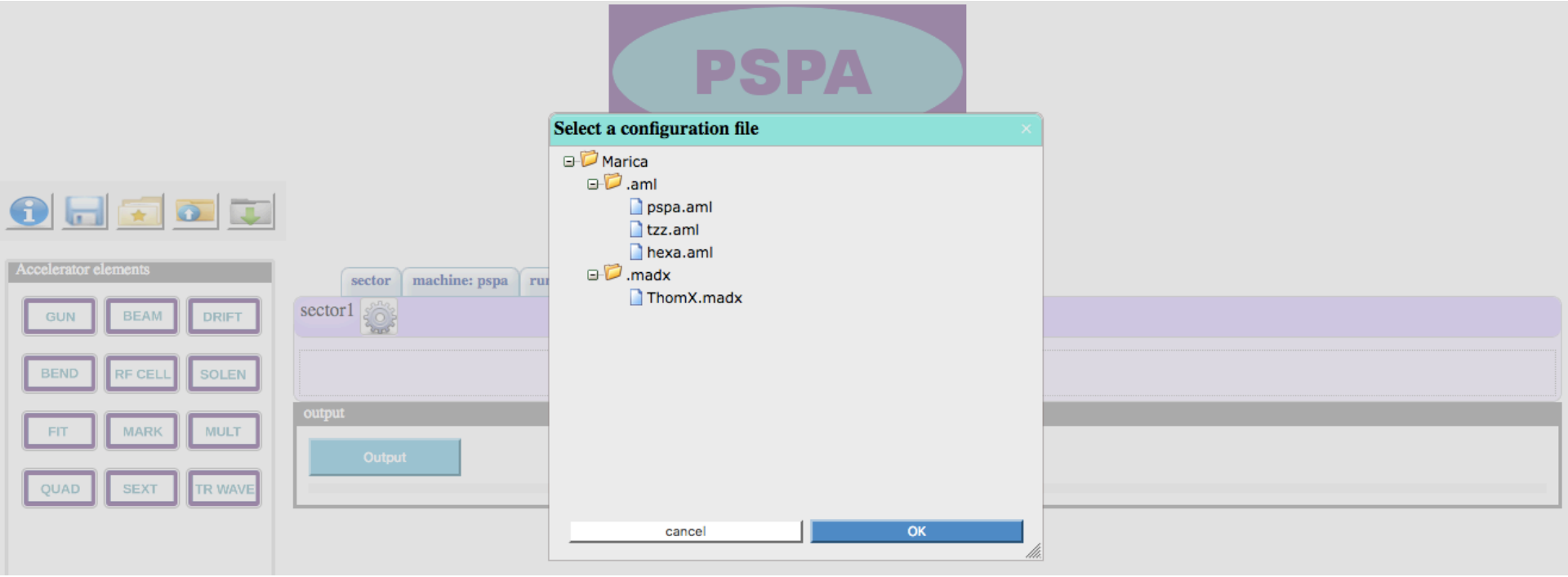


"Main" window

- Here you can:
  - Import or export existing files (from the server or from your computer)
  - Build a lattice from scratch
  - Add/remove elements
  - Modify element's properties

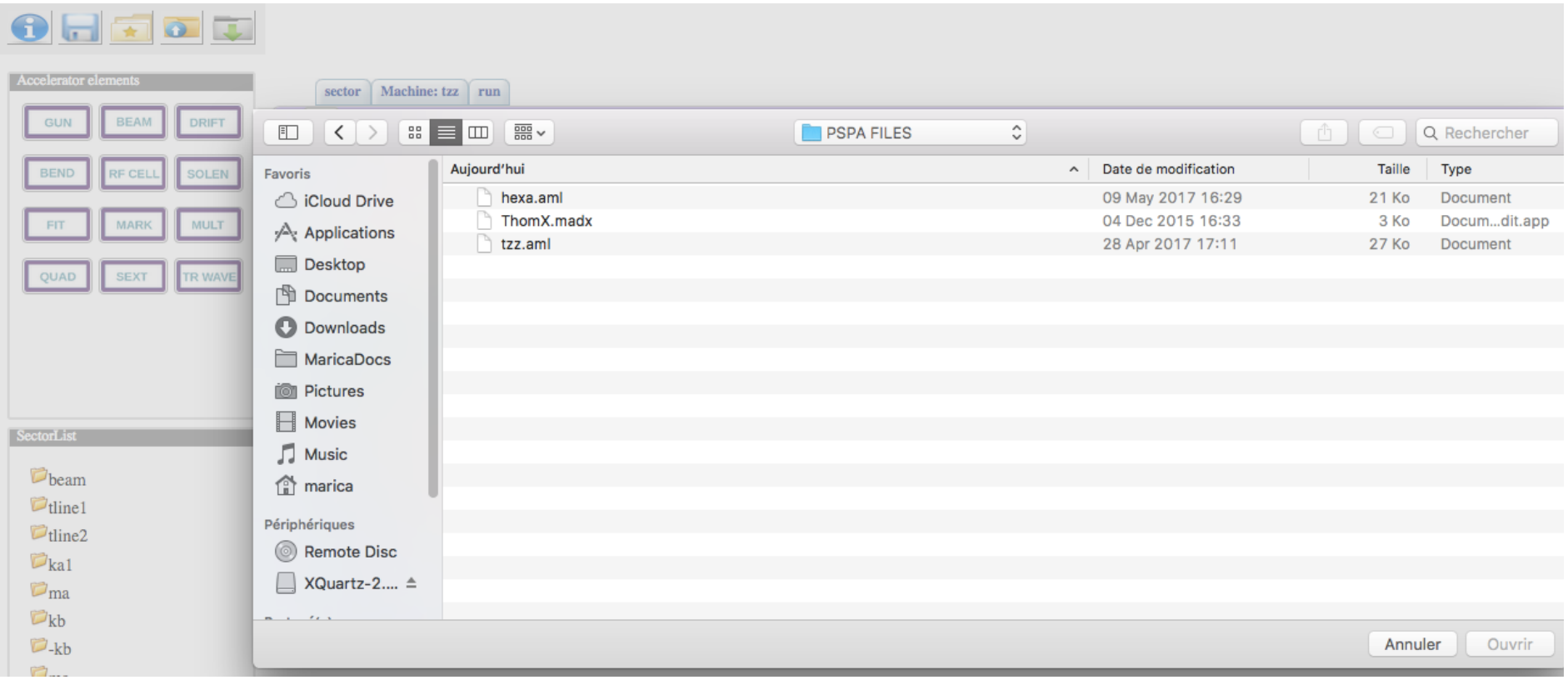
Select input file

- Files format can be: .aml, madx, ….
- In the example below files are on the user's area on server



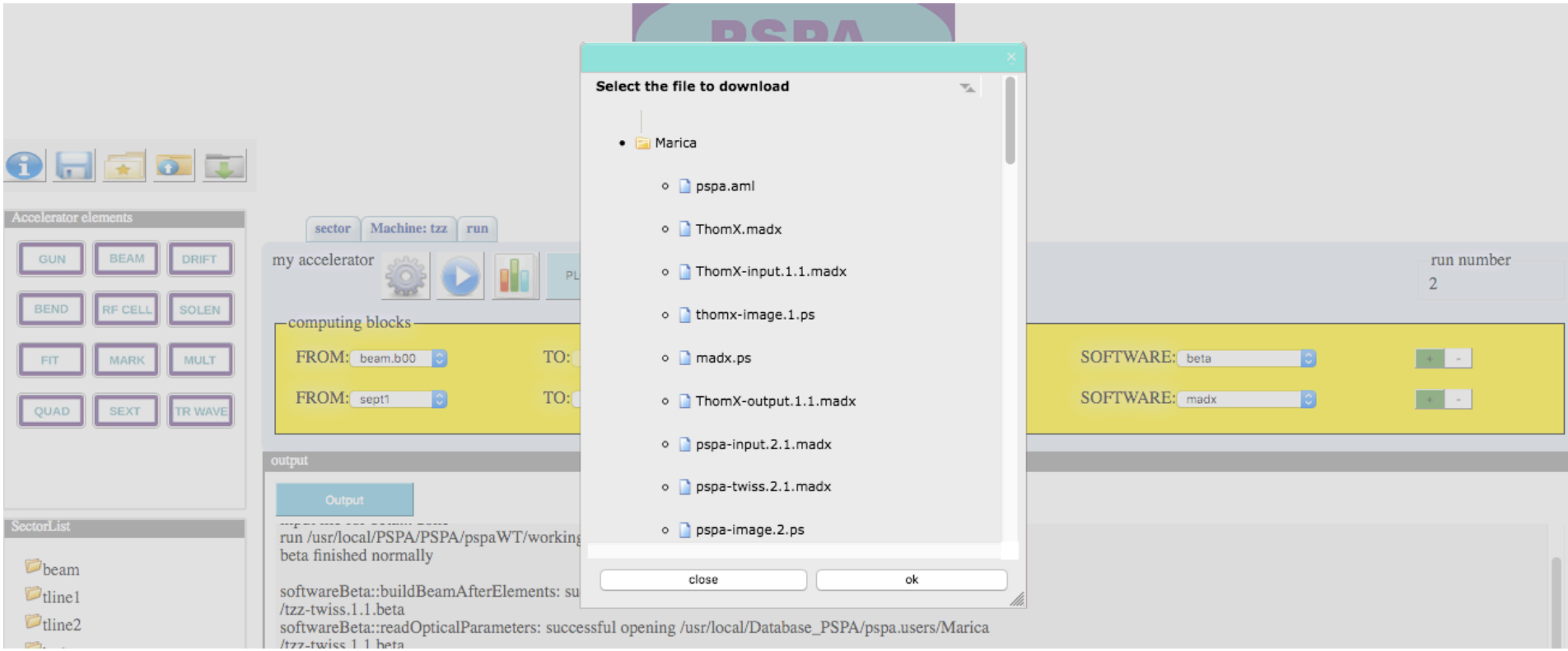
Select input file

- In the example below files are on the user's computer

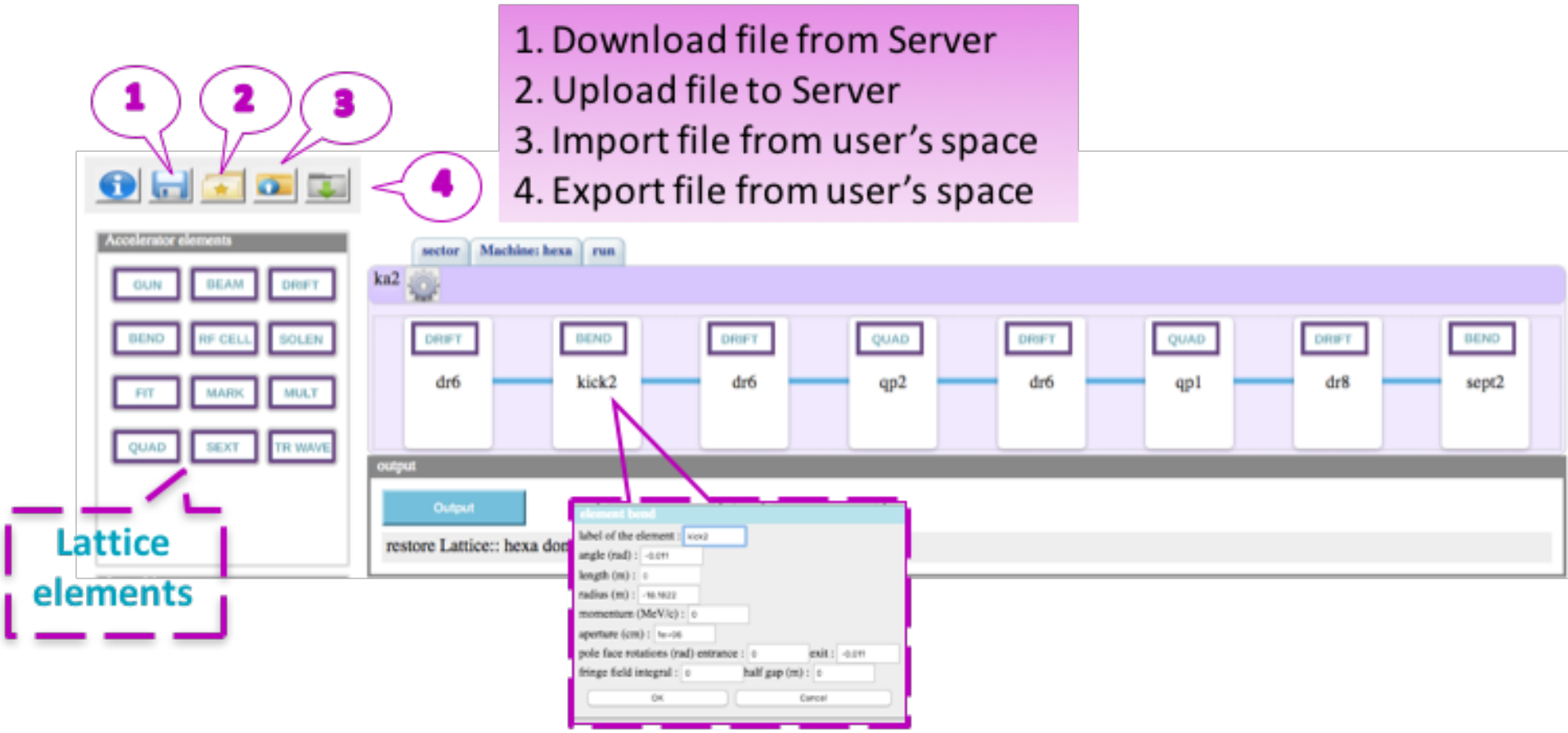


Saving input/output files

- In the example below files can be saved from the server to the user's computer

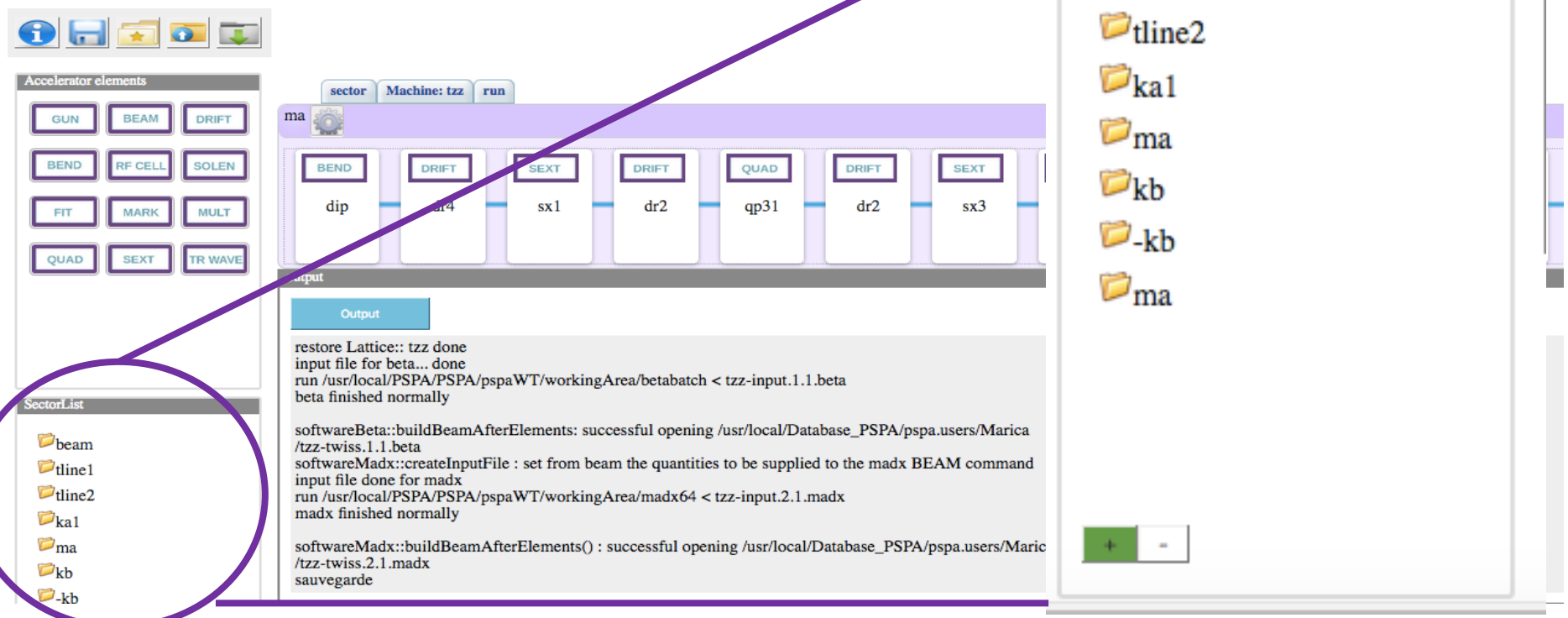


Managing files and element's properties



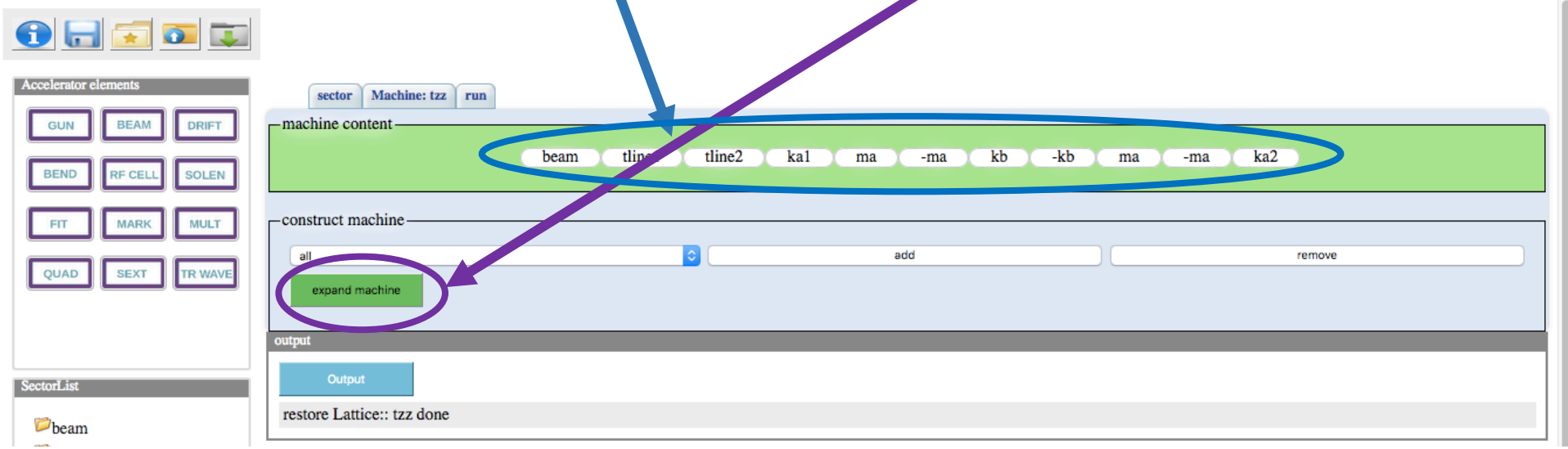
Select lattice or part of it

- In the example below a lattice has been downloaded and element's properties can be managed
- The "Sector list" on the bottom left contains the lattice sections as define by MADX "line" command
- It is possible to add/remove them easily by hitting + -



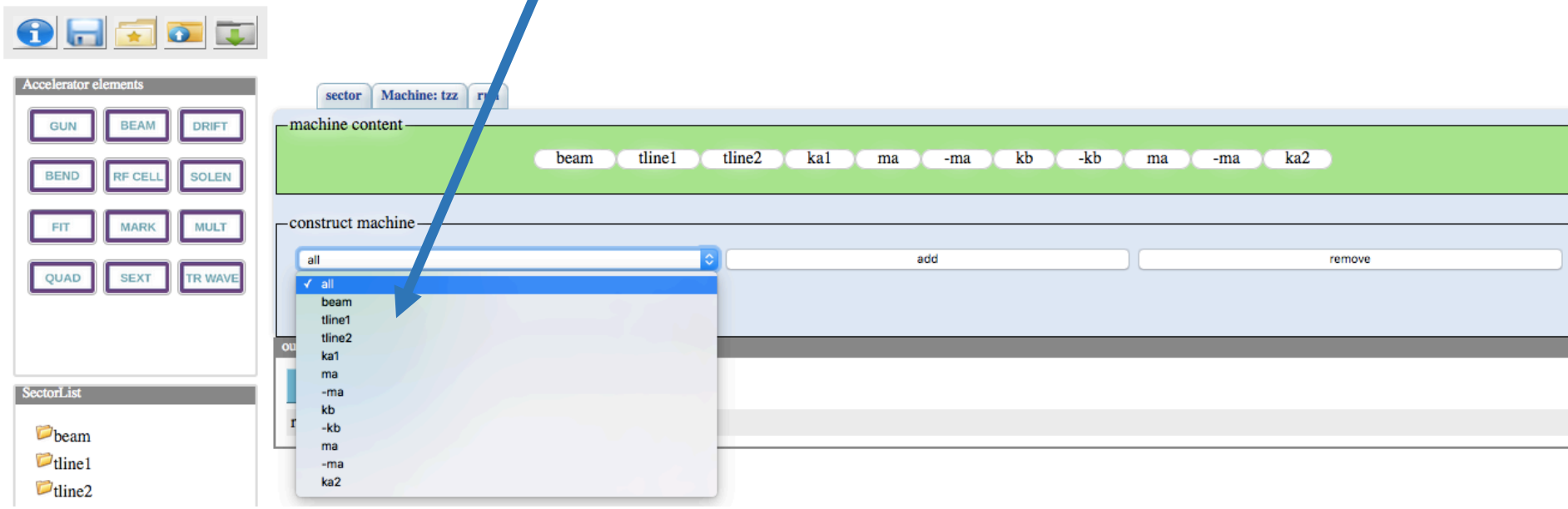
"Build lattice" window

- Once the lattice has been created, in this window you can manage it for execution, by adding/deleting part of it or select "sectors" to be simulated
- Once selected your lattice hit the "expand machine" button



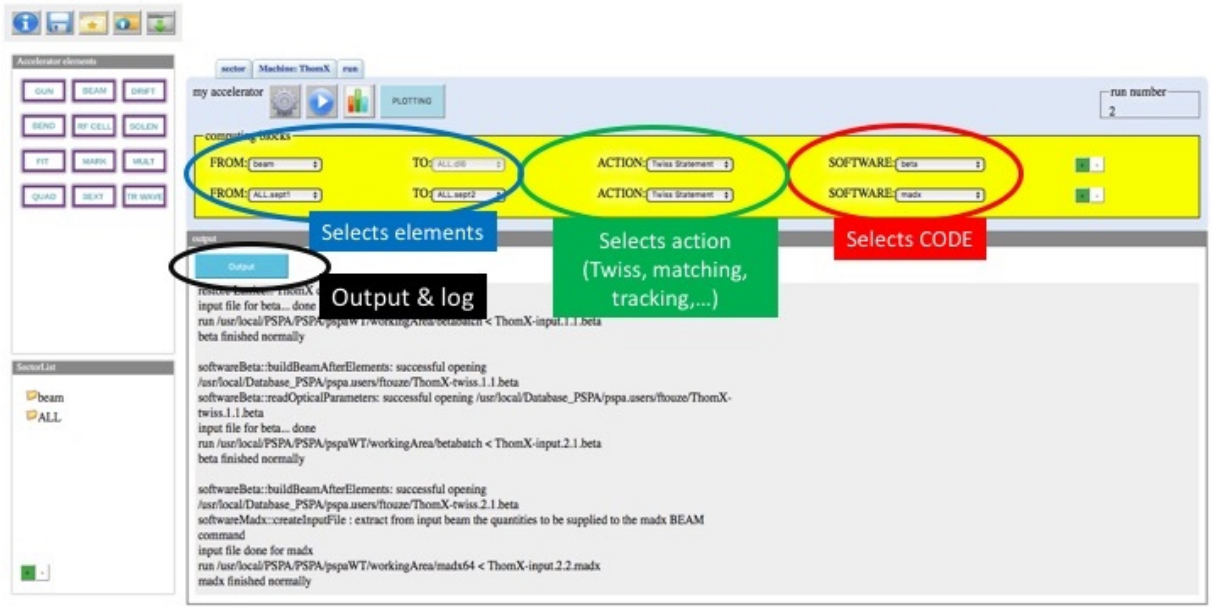
"Build lattice" window

- Select a specific sector of your lattice



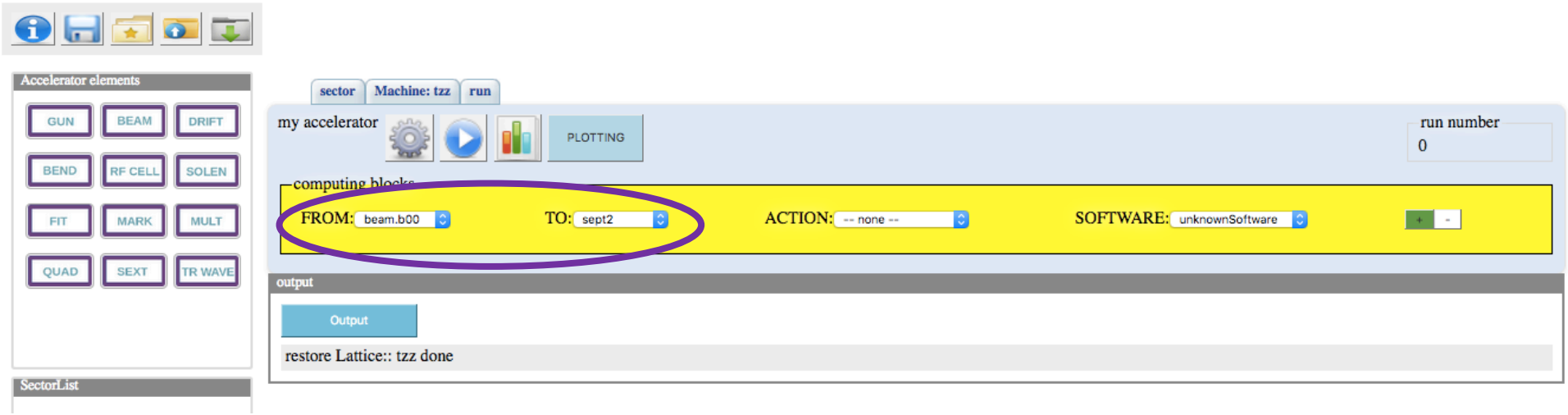
"RUN" window

- In this window you can select "actions" and "codes"
- Hitting the + button it is possible to select different sectors to be simulated with different codes (example below shows calculation of Twiss functions for ThomX Transfer Line with BETA and ThomX Ring with MADX)



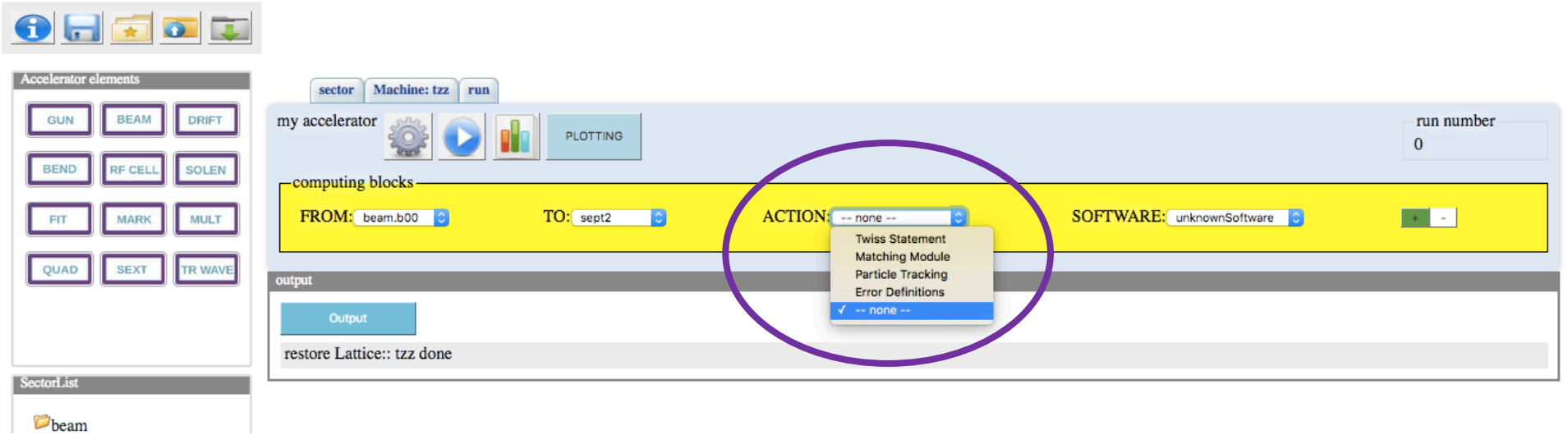
"RUN" window

- Select "sector"



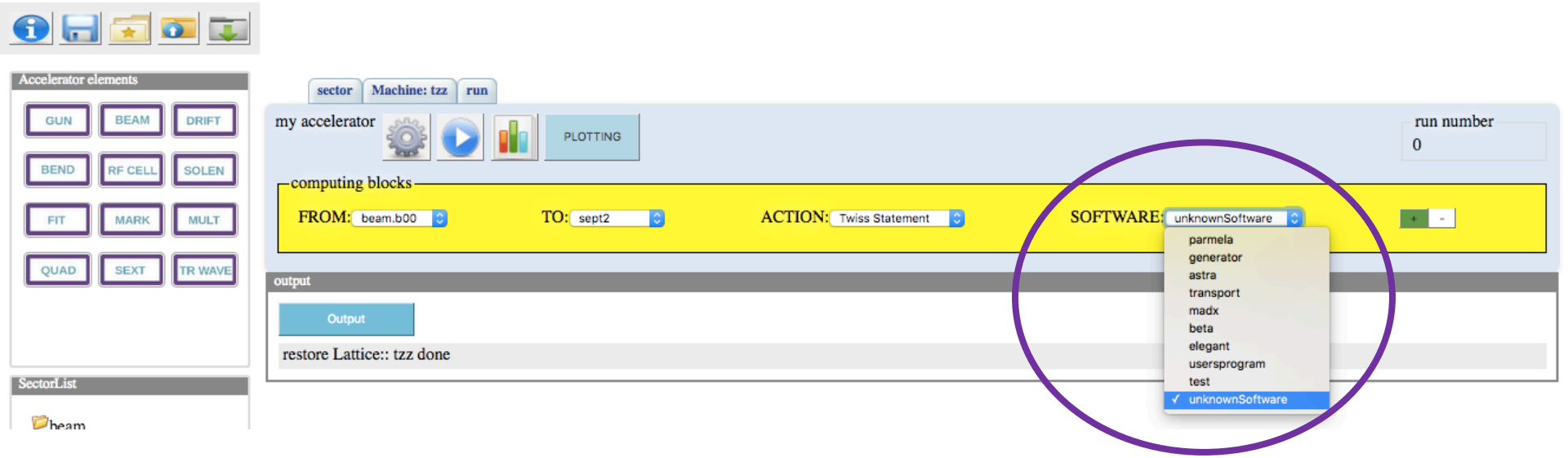
"RUN" window

- Select "action"



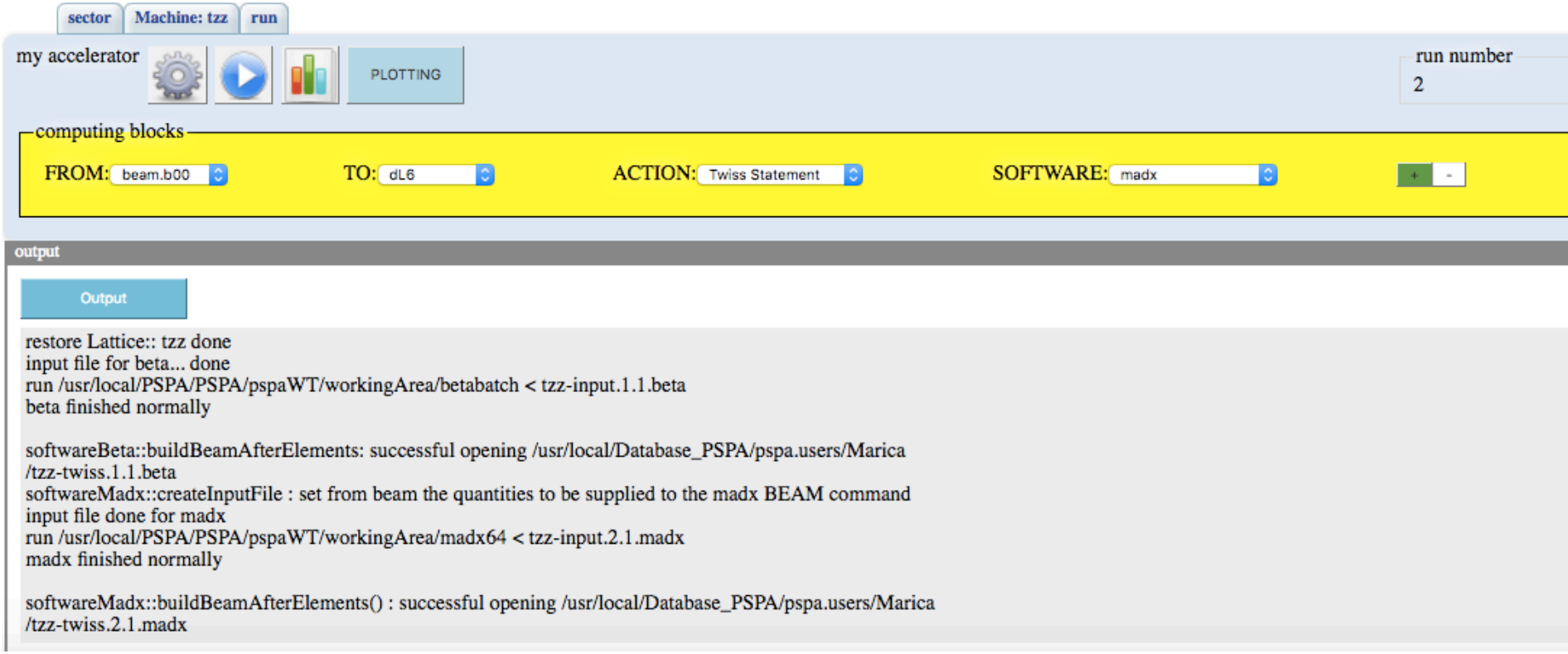
"RUN" window

- Select "code"
- Hit RUN 



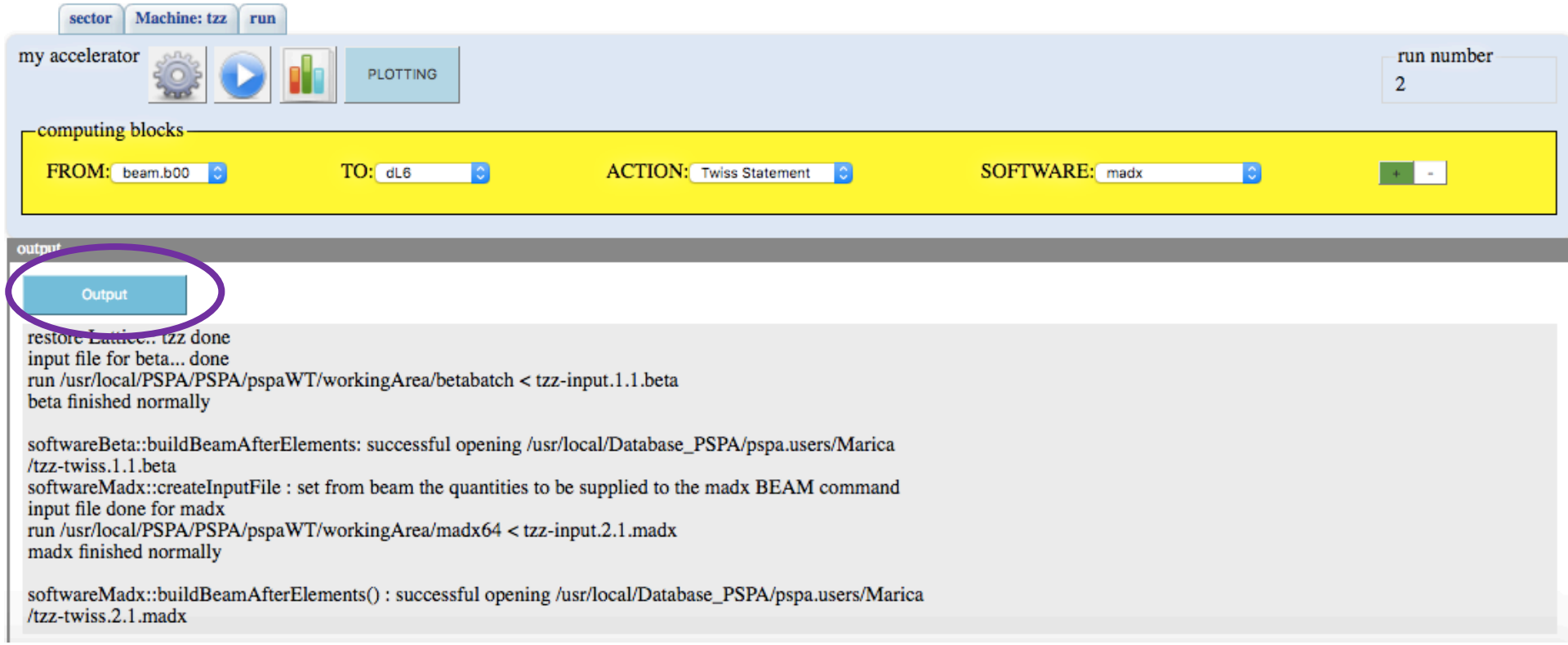
"RUN" window

- The output window below shows a log from code's execution



"RUN" window

- Hit the Output button to see the code's output file



PSPA

"RUN" window

- Example of MADX output file

software Output

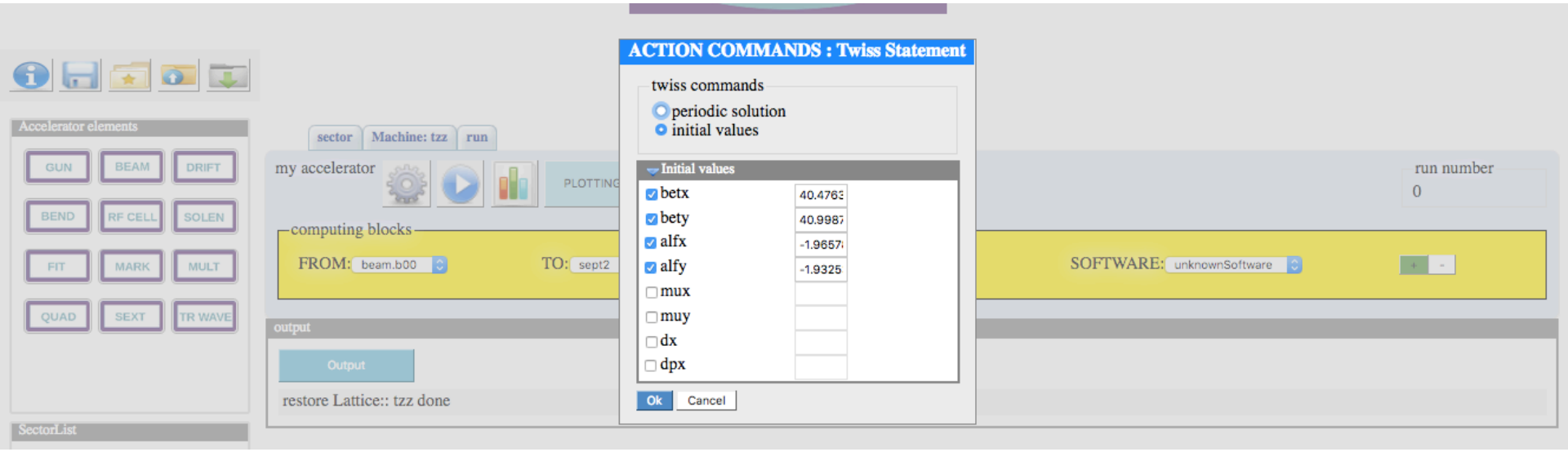
Search:

```
++++++++++++++++++++++++++++++++++++++++++++
+ MAD-X 5.01.00 (64 bit, Linux) +
+ Production Version +
+ Code Modification Date: 2013.03.13 +
+ Execution Time Stamp: 12.05.17 13.30.13 +
++++++++++++++++++++++++++++++++++++++++++++
TITLE,'tzz';

BEAM, PARTICLE= electron, PC= 0.05, Ex= 0.00015, EY= 0.00015;


EN:=0.05;

beam.dL0: DRIFT, L=0.4;

qp0L: QUADRUPOLE, L=0.15, K1= -1.30602;

dL2: DRIFT, L=0.2;

qp1L: QUADRUPOLE, L=0.15, K1= 10.8134;

qp2L: QUADRUPOLE, L=0.15, K1= -9.60993;
```

Close

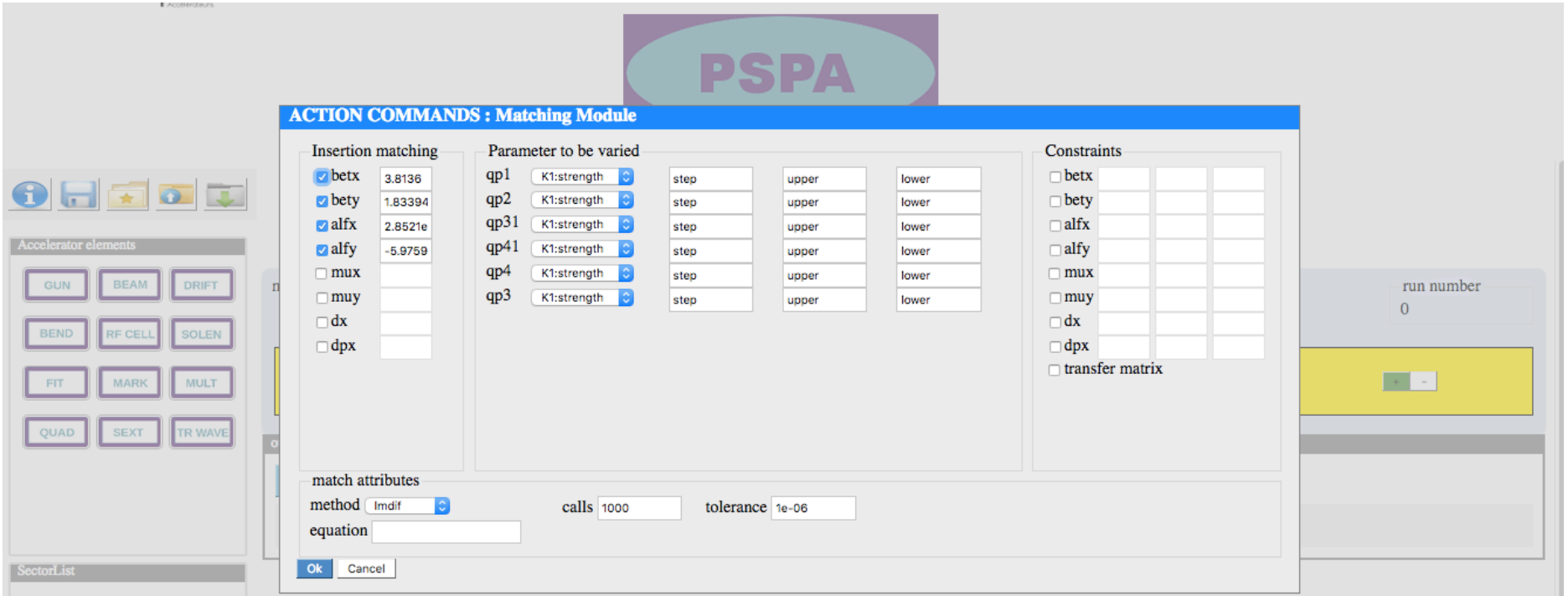
Twiss "action"

- Calculation of optical functions β, α, dispersion, tunes
- When action "Twiss" is selected, a window allows for selecting periodical Twiss functions or setting initial values for non periodical solutions
- Initial values by default are taken by the input file, but can be changed at will



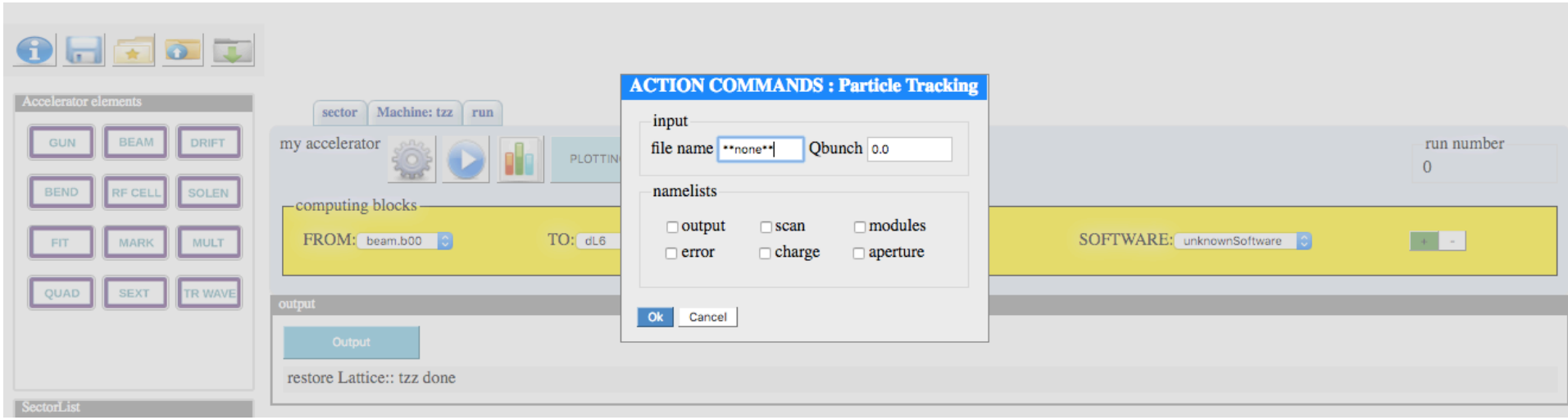
Match "action"

- Matching of optical functions β, α, dispersion, tunes as well as one-turn matrix elements can be performed
- When action "Match" is selected, a window allows for selecting "constraints" and "variables" for matching and minimization method
- Initial values by default are taken by the input file, but can be changed at will



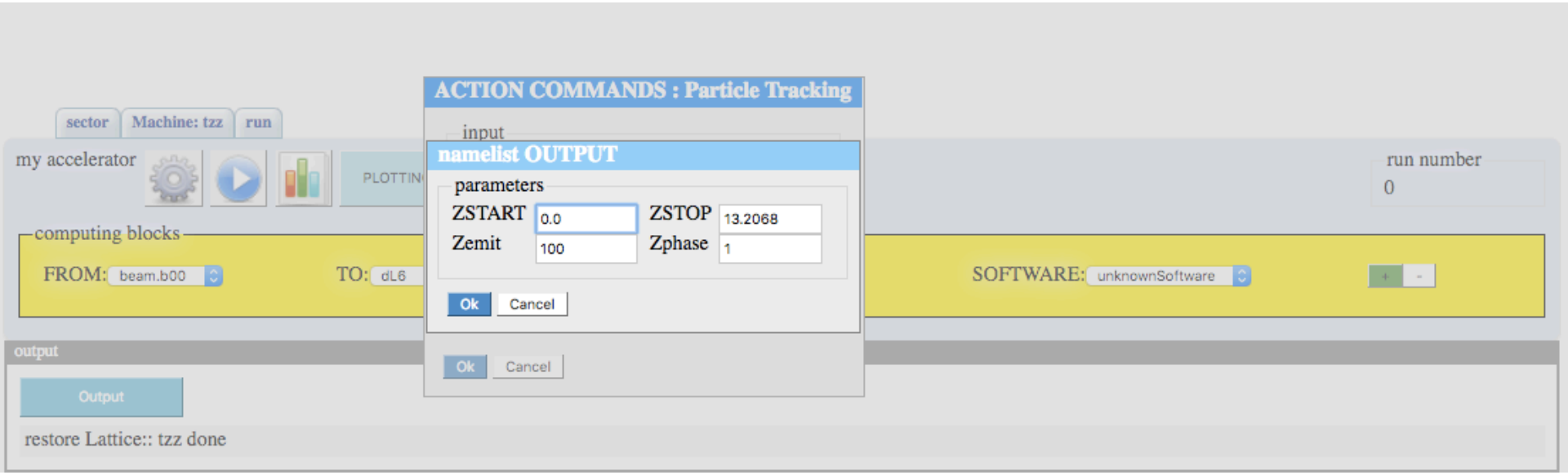
Particle tracking "action"

- Particle tracking command is used to run Parmela@LAL or ASTRA codes
- When action "Particle tracking" is selected, a window allows for selecting the "beam" input file, input the beam charge and select different actions



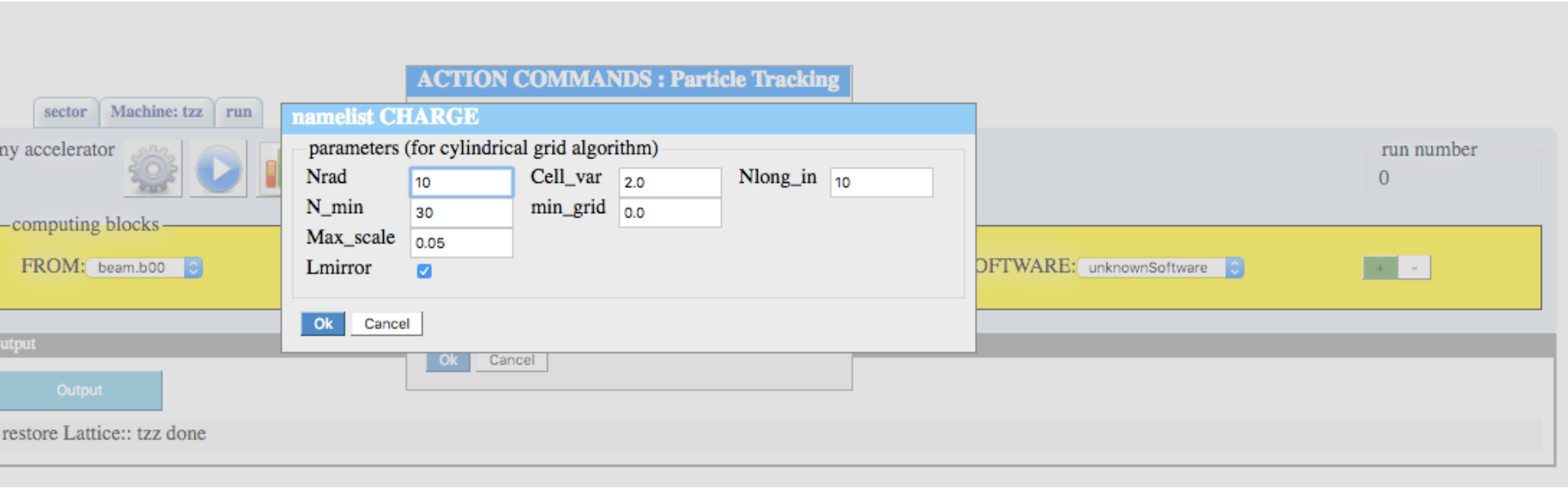
Particle tracking "action"

- When "output" is selected a start and end location for the lattice is requested
- Zemit is the number of steps for which the emittance value is saved
- Zphase is the number of steps for which a file with particles coordinates and beam properties is saved



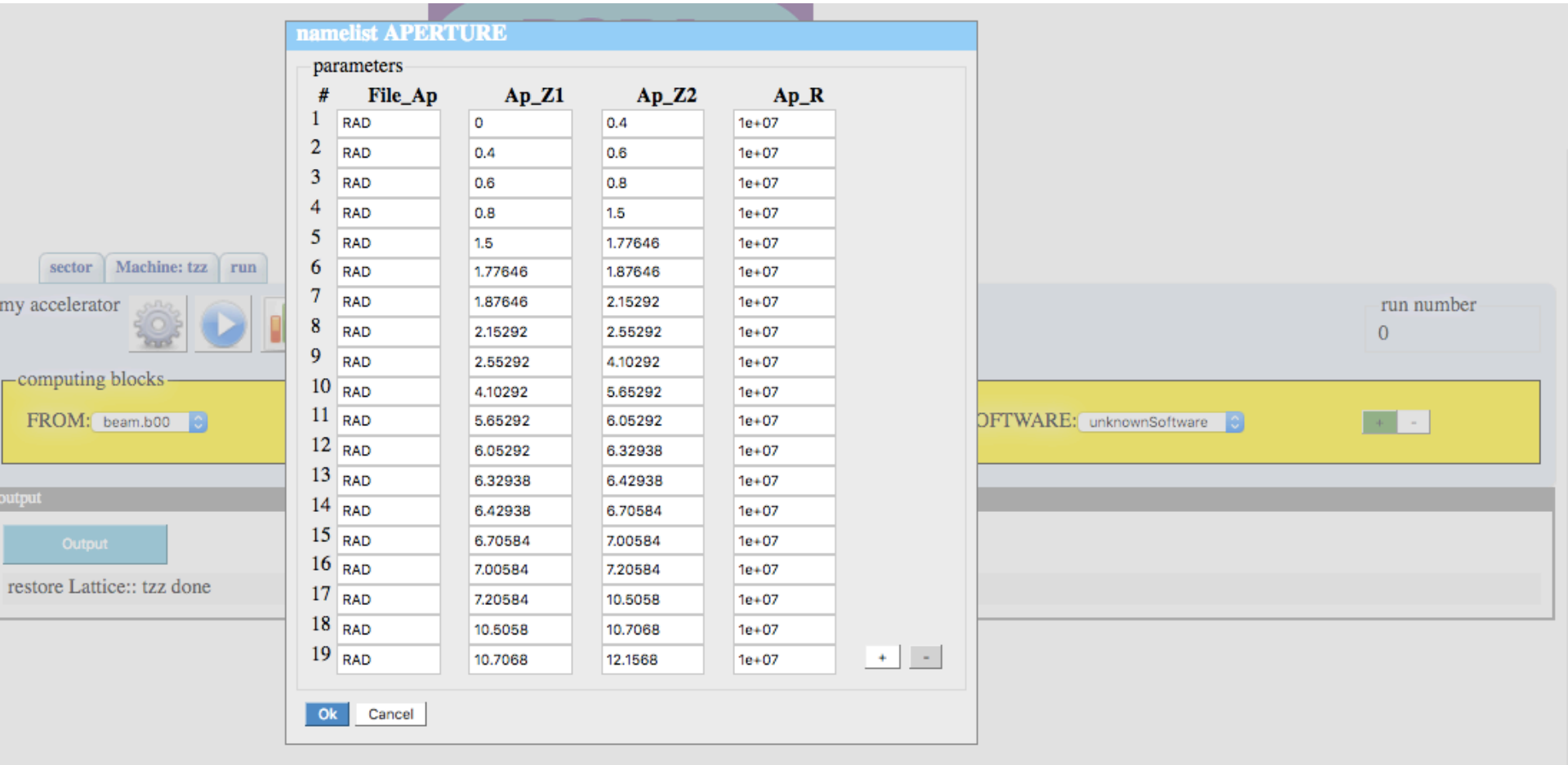
Particle tracking "action"

- When "charge" is selected several parameters are requested (see code's manuals)



Particle tracking "action"

- When "aperture" is selected the beam pipe apertures can be given



#	File_Ap	Ap_Z1	Ap_Z2	Ap_R
1	RAD	0	0.4	1e+07
2	RAD	0.4	0.6	1e+07
3	RAD	0.6	0.8	1e+07
4	RAD	0.8	1.5	1e+07
5	RAD	1.5	1.77646	1e+07
6	RAD	1.77646	1.87646	1e+07
7	RAD	1.87646	2.15292	1e+07
8	RAD	2.15292	2.55292	1e+07
9	RAD	2.55292	4.10292	1e+07
10	RAD	4.10292	5.65292	1e+07
11	RAD	5.65292	6.05292	1e+07
12	RAD	6.05292	6.32938	1e+07
13	RAD	6.32938	6.42938	1e+07
14	RAD	6.42938	6.70584	1e+07
15	RAD	6.70584	7.00584	1e+07
16	RAD	7.00584	7.20584	1e+07
17	RAD	7.20584	10.5058	1e+07
18	RAD	10.5058	10.7068	1e+07
19	RAD	10.7068	12.1568	1e+07

Particle tracking "action"

- When "error" is selected errors in the lattice (ASTRA code) can be given (see manual)