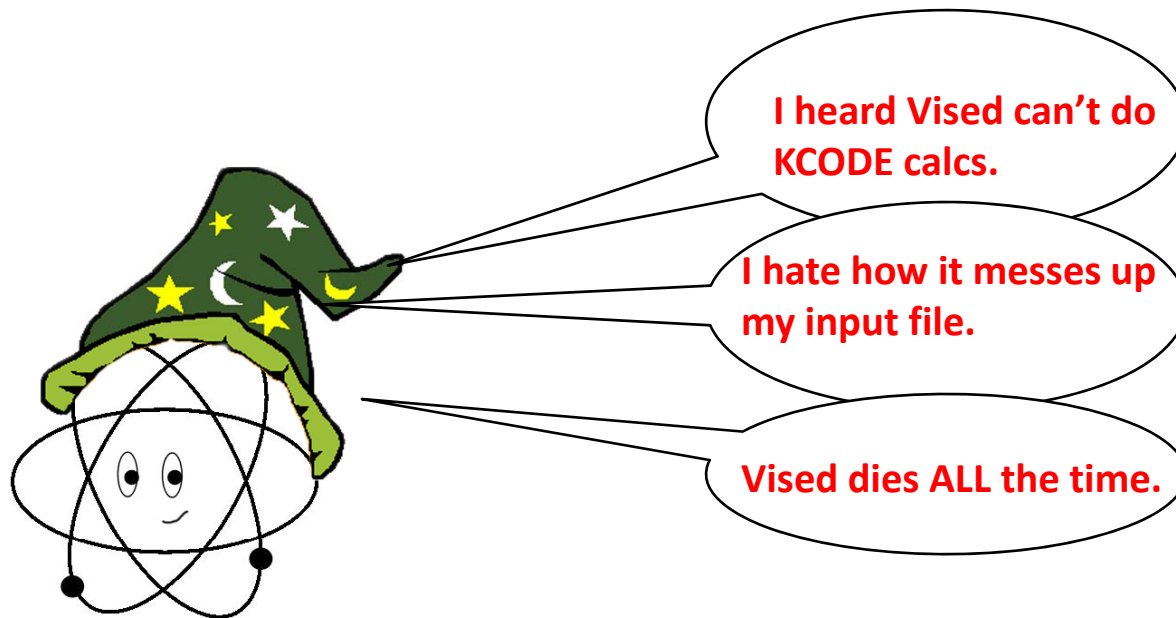


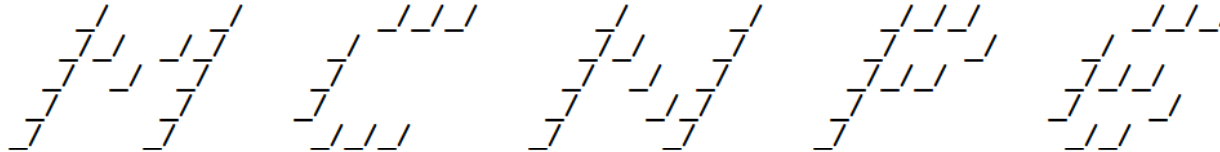
# Visual MCNP Editor Lore

1. The Visual MCNP Editor can not run my input file.
2. I do not use the Visual Editor it dies all the time.
3. Vised died and I lost my input file.
4. Vised messes up my input file.
5. I can get my job done better without Vised.



# The Visual Editor/Plotter is MCNP

Code Name & Version = MCNP6, 1.0



```
+-----+
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+-----+
```

```
lmcnp      version 6      ld=12/04/13      09/10/14 00:54:04
*****
i=criti8a name=jcrit8a_v.
```

# Visual MCNP Editor can not run my input file

The screenshot displays the Visual MCNP6 Editor interface. The main window shows a 2D cross-section of a hexagonal lattice structure with various colored cells. A console window in the foreground shows the following MCNP6 input:

```
5 whp 0 0 -1.1 0 0 82.2 0 2.0 0
6 rcc 0 0 -1.1 0 0 82.2 20

C Control Cards
mpphys on
C Burn Cards
burn mat 1 4i 6
time 500
pfrac 1
power 20
bopt 1.0 -14 1.0
afmin 1e-10 1e-4
matvol 653.56 653.56 3921.36 6535.60 27449.51 653.56

C Material Cards
m0 nlib=.70c
m1 8016 2.0
92235 0.50
92238 0.50
m2 8016 2.0
92235 0.50
92238 0.50
m3 8016 2.0
92235 0.50
92238 0.50
m4 8016 2.0
92235 0.50
92238 0.50
m5 8016 2.0
92235 0.50
92238 0.50
m6 8016 2.0
92235 0.50
92238 0.50
m8 40090 1.0
m9 1001 2.0
```

An "Execute MCNP" dialog box is open, showing the current directory as "C:\RANDY\Knoxville\_2014\rns" and the input file as "criti6a". The dialog includes fields for "Input", "Output", "Runtime", and "Material" files, along with a "STOP" button and a "Click help for more information" link.

Overlaid on the interface are two yellow text boxes:

- A box in the upper right corner containing the text "Vised is MCNP".
- A larger box in the lower right corner containing the text "MCNP6 Burn Calculation".

The background of the interface features a repeating watermark of "Visual MCNP6".

# Visual MCNP6 Plotter compared to MNCP6

```
| the final estimated combined collision/absorption/track-length keff = 1.29555 with an estimated standard deviation of 0.01163  
| the estimated 68, 95, & 99 percent keff confidence intervals are 1.28382 to 1.30729, 1.27198 to 1.31912, and 1.26397 to 1.32713  
| the final combined (col/abs/tl) prompt removal lifetime = 9.1859E-06 seconds with an estimated standard deviation of 4.1031E-07  
| the average neutron energy causing fission = 3.9731E-01 mev  
| the energy corresponding to the average neutron lethargy causing fission = 2.9451E-04 mev  
| the percentages of fissions caused by neutrons in the thermal, intermediate, and fast neutron range  
|   (<0.625 ev): 21.17%      (0.625 ev - 100 kev): 55.37%      (>100 kev): 23.46%  
| the average fission neutrons produced per neutron absorbed (capture + fission) in all cells with fission = 1.7493E+00  
| the average fission neutrons produced per neutron absorbed (capture + fission) in all the geometry cells = 1.5766E+00  
| the average number of neutrons produced per fission = 2.457
```

**MCNP6**

```
| the final estimated combined collision/absorption/track-length keff = 1.29555 with an estimated standard deviation of 0.01163  
| the estimated 68, 95, & 99 percent keff confidence intervals are 1.28382 to 1.30729, 1.27198 to 1.31912, and 1.26397 to 1.32713  
| the final combined (col/abs/tl) prompt removal lifetime = 9.1859E-06 seconds with an estimated standard deviation of 4.1031E-07  
| the average neutron energy causing fission = 3.9731E-01 mev  
| the energy corresponding to the average neutron lethargy causing fission = 2.9451E-04 mev  
| the percentages of fissions caused by neutrons in the thermal, intermediate, and fast neutron range  
|   (<0.625 ev): 21.17%      (0.625 ev - 100 kev): 55.37%      (>100 kev): 23.46%  
| the average fission neutrons produced per neutron absorbed (capture + fission) in all cells with fission = 1.7493E+00  
| the average fission neutrons produced per neutron absorbed (capture + fission) in all the geometry cells = 1.5766E+00  
| the average number of neutrons produced per fission = 2.457
```

**Vised**

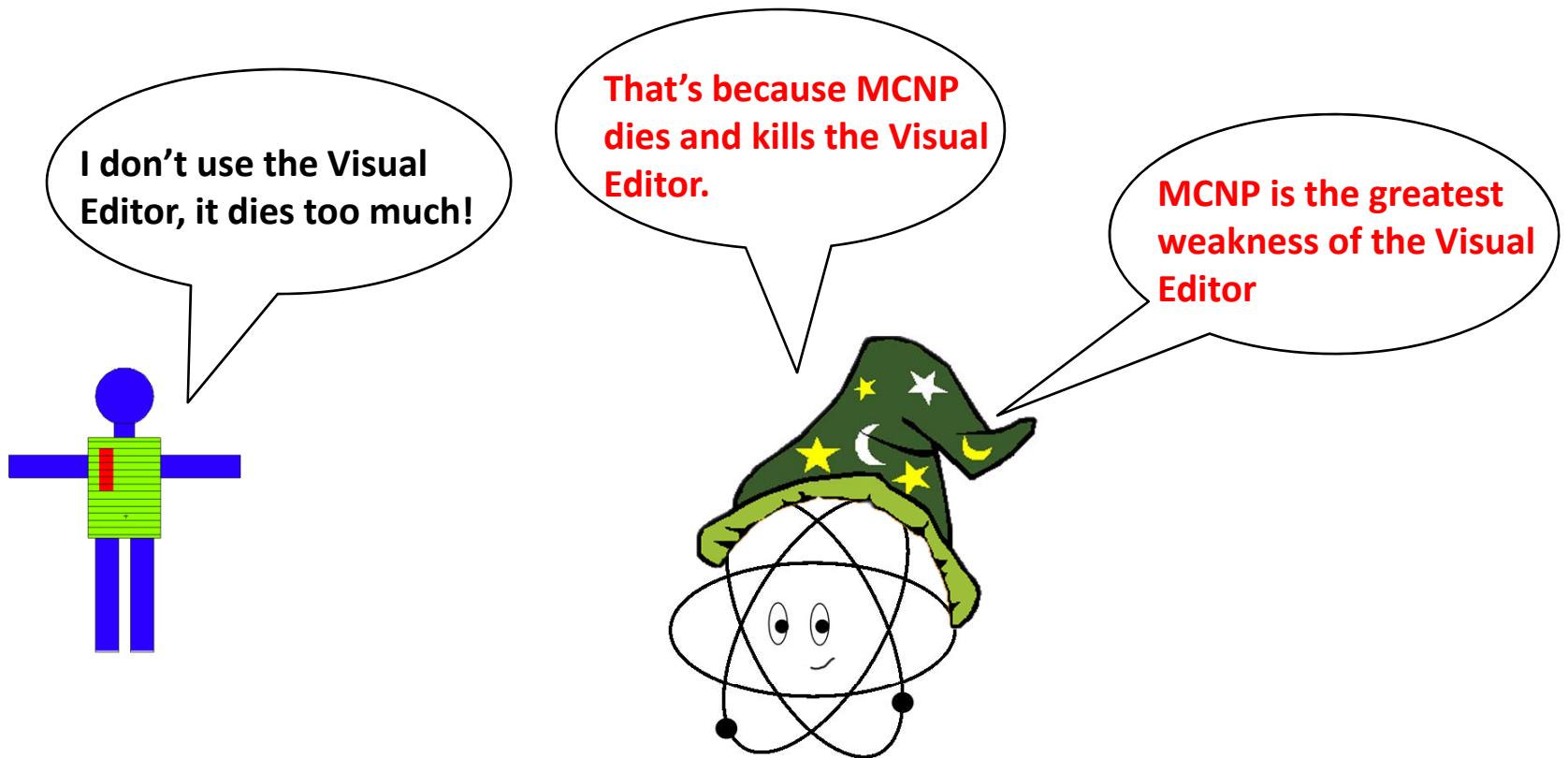
**I do not use the Visual Editor it dies all the time.**

**Vised's greatest strength is MCNP**

- 1. Anything MCNP can calculate, the Visual Editor could visualize.**
- 2. Reads input files using the MCNP Fortran**
- 3. Can create 3D ray traced images**
- 4. Can display particle tracks**
- 5. Cross section plotting**
- 6. Tally plotting, including mesh tallies**
- 7. Weight window meshes**

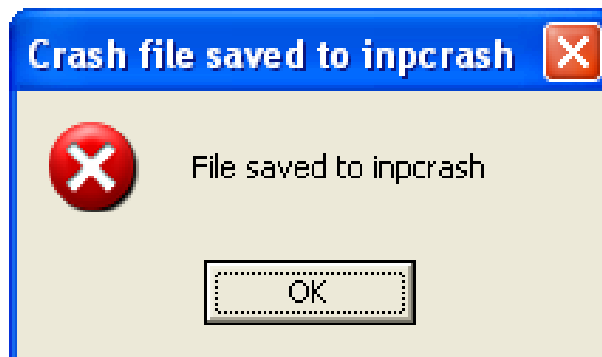
# Visual Editor's greatest weakness is MCNP

**1. Give the Visual Editor an invalid input file and it may die**



# It is easy to kill the MCNP Visual Editor

- **Just insert a blank line in the input cell section**
- **Do Save-Update**



# It is easy to kill MCNP

- **MCNP will also die for this same input file.**

```
C:\WINDOWS\system32\cmd.exe
fatal error. surface -37 of cell 6 is not defined.
fatal error. surface 8 of cell 6 is not defined.
fatal error. surface 2 of cell 6 is not defined.
fatal error. surface -7 of cell 6 is not defined.
fatal error. surface -6 of cell 7 is not defined.
fatal error. surface 10 of cell 7 is not defined.
fatal error. surface -9 of cell 8 is not defined.
fatal error. surface -5 of cell 8 is not defined.
fatal error. surface -10 of cell 9 is not defined.
warning. 37 surfaces were deleted for being the same as others.
warning. there are no tallies in this problem.
warning. no cross-section tables are called for in this problem.
forrtl: severe (157): Program Exception - access violation
Image          PC          Routine          Line          Source
mcnpx.exe      006EF37A   Unknown         Unknown       Unknown
mcnpx.exe      0067C432   Unknown         Unknown       Unknown
mcnpx.exe      005E93AA   Unknown         Unknown       Unknown
mcnpx.exe      00585797   Unknown         Unknown       Unknown
mcnpx.exe      00571F6A   Unknown         Unknown       Unknown
mcnpx.exe      00401037   Unknown         Unknown       Unknown
mcnpx.exe      008AAFB3   Unknown         Unknown       Unknown
mcnpx.exe      008824A5   Unknown         Unknown       Unknown
kernel32.dll   7C817077   Unknown         Unknown       Unknown
c:\VIS_01d>
```

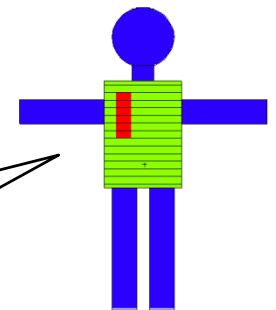
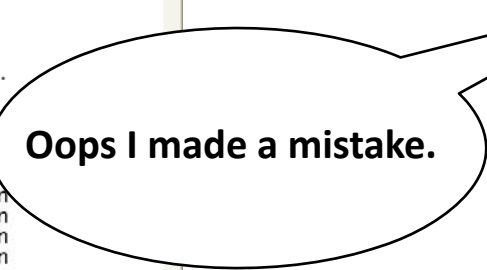


# With Great Power Comes ...



- **Don't blame the messenger**

```
C:\WINDOWS\system32\cmd.exe
fatal error. surface -37 of cell 6 is not defined.
fatal error. surface 8 of cell 6 is not defined.
fatal error. surface 2 of cell 6 is not defined.
fatal error. surface -7 of cell 6 is not defined.
fatal error. surface -6 of cell 7 is not defined.
fatal error. surface 10 of cell 7 is not defined.
fatal error. surface -9 of cell 8 is not defined.
fatal error. surface -5 of cell 8 is not defined.
fatal error. surface -10 of cell 9 is not defined.
warning. 37 surfaces were deleted for being the same as others.
warning. there are no tallies in this problem.
warning. no cross-section tables are called for in this problem.
forrtl: severe (157): Program Exception - access violation
Image PC Routine Line Source
mcnpx.exe 006EF37A Unknown Unknown Unknown
mcnpx.exe 0067C432 Unknown Unknown Unknown
mcnpx.exe 005E93AA Unknown Unknown Unknown
mcnpx.exe 00585797 Unknown Unknown Unknown
mcnpx.exe 00571F6A Unknown Unknown Unknown
mcnpx.exe 00401037 Unknown Unknown Unknown
mcnpx.exe 008AAF83 Unknown Unknown Unknown
mcnpx.exe 008824A5 Unknown Unknown Unknown
kernel32.dll 7C817077 Unknown Unknown Unknown
C:\VIS_old>
```

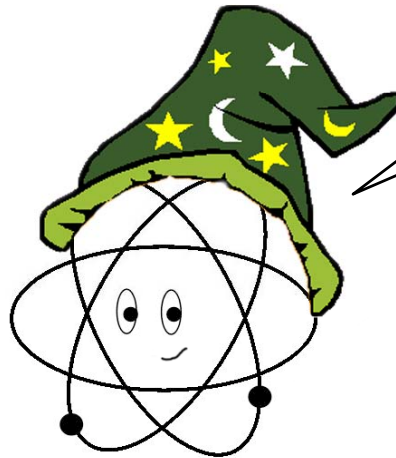


# The Visual Editor died and I lost my input file.

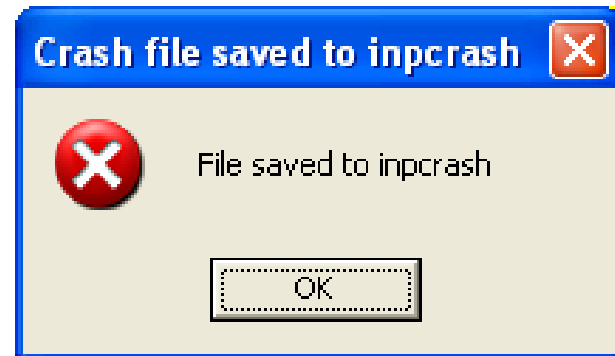
- On some fatal errors MCNP will stop execution. Vised saves the file to inpcrash.

M  
C  
N  
P

I am dying and there is nothing you can do about it.



Well at least let me save the file first!



# If the Visual MCNP Editor dies on save-update?



**Don't Panic.**

**The file is saved to  
inpn before the plot  
is updated.**

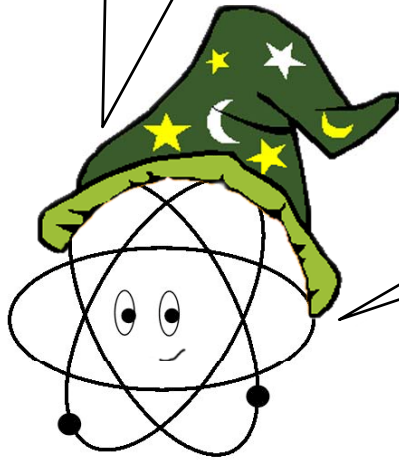
**But inpn is a  
temporary file. If I  
go right back into  
Vised I might lose it.**

# If Visual Editor dies randomly?

**Oops Vised decided  
to die for no  
particular reason.**

**Don't Panic.**

**The file is backed  
up every 5 minutes  
to inpn.sav**

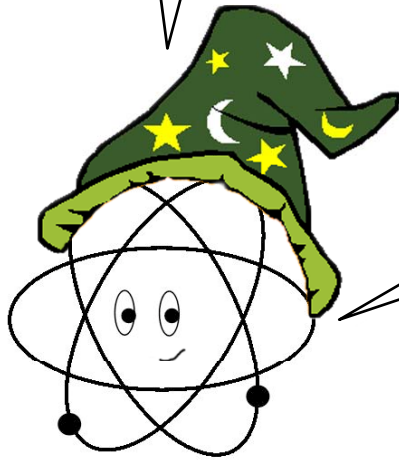


# If Death bothers you?

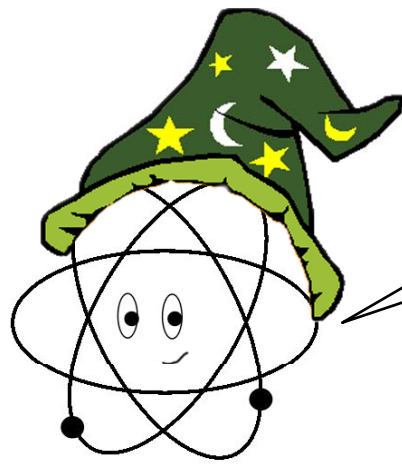
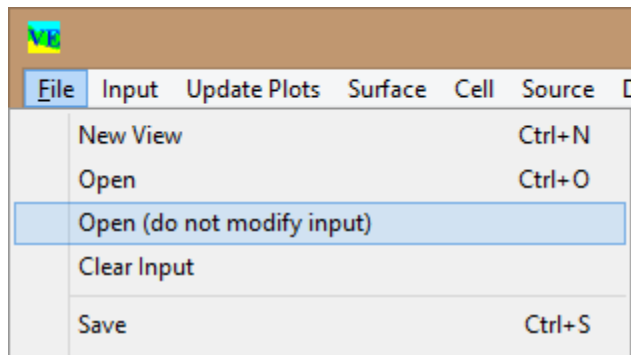
**Do not use the  
Vised input  
window.**

**Use your own  
favorite editor**

**Use Read\_again to  
update the plots in  
Vised.**

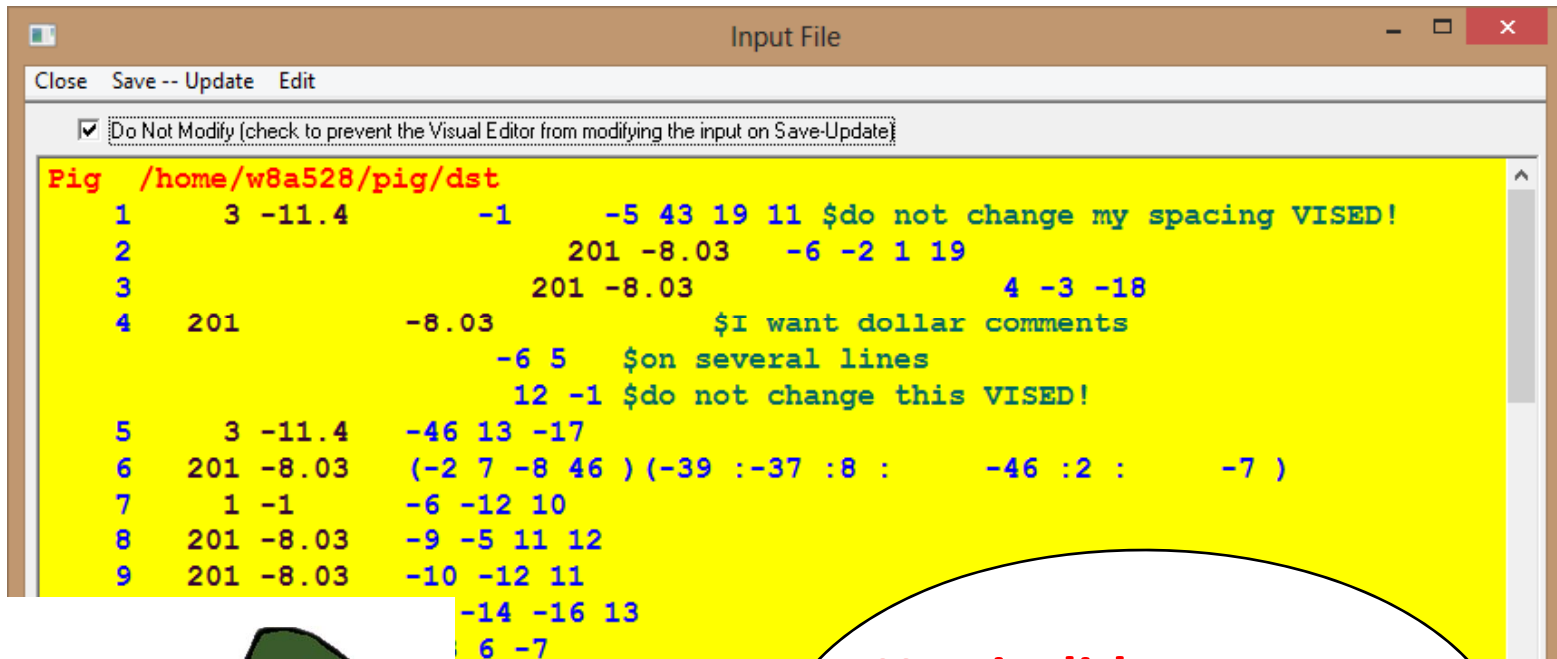


# The Visual Editor messes up my input file.

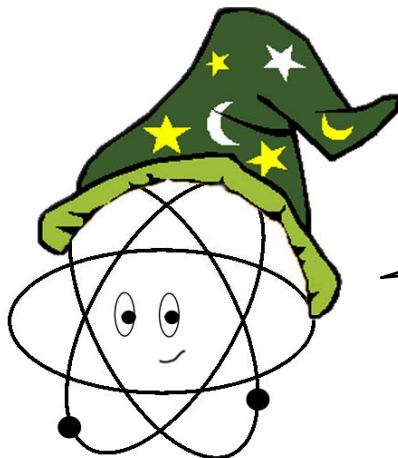


**In “do not modify”  
mode, vised does  
not change the  
input file.**

# Visual MCNP6 Plotter only opens files in “do not modify” mode



```
Pig /home/w8a528/pig/dst
1 3 -11.4 -1 -5 43 19 11 $do not change my spacing VISED!
2 201 -8.03 -6 -2 1 19
3 201 -8.03 4 -3 -18
4 201 -8.03 $I want dollar comments
-6 5 $on several lines
12 -1 $do not change this VISED!
5 3 -11.4 -46 13 -17
6 201 -8.03 (-2 7 -8 46 ) (-39 :-37 :8 : -46 :2 : -7 )
7 1 -1 -6 -12 10
8 201 -8.03 -9 -5 11 12
9 201 -8.03 -10 -12 11
-14 -16 13
6 -7
```



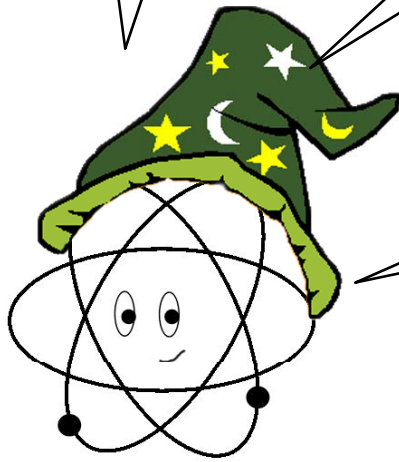
Hey it did not change my input file.

# I can get my job done better without the Visual Editor

Many changes are done easier by hand.

Visual Editor does not create tallies, variance reduction cards, WW mesh, etc.

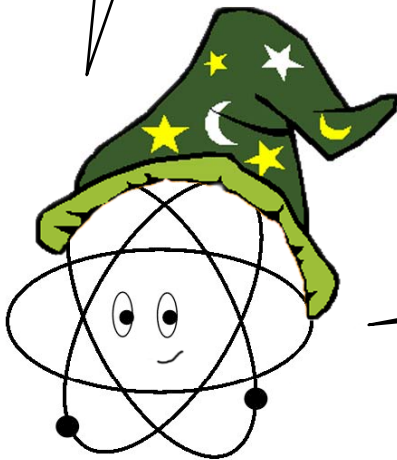
What is the most important thing the Visual Editor does?





# What is the most important thing the Visual Editor does?

I want a source in cell 1.



MCNPX Visual Editor Version X\_24J

c Created on: Wednesday, September 10, 2014 at 15:10

```
1 0 -2 imp:n=1
2 0 2 -1 imp:n=1
3 0 1 imp:n=0
```

```
1 so 100
2 rcc 0 0 -50 0 0 100 50
```

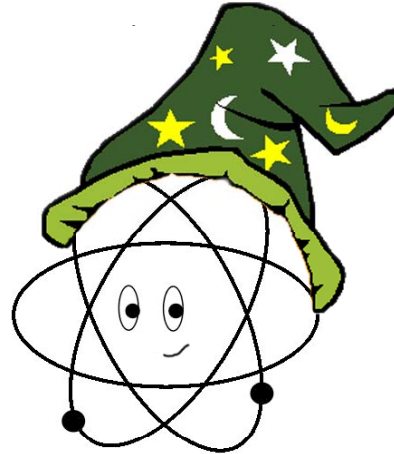
```
mode n
sdef rad=50 ext=d2
si2 -50 50
print
ppc 10000
```

Is this source correct?

# Look at first 50 particles.

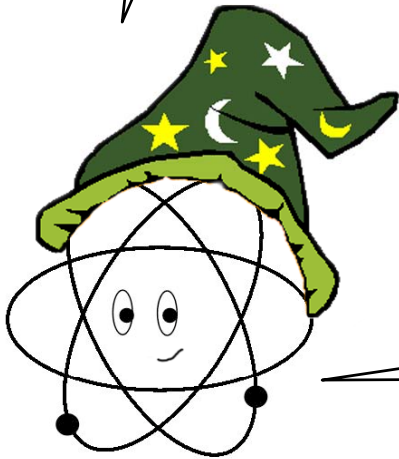
nps	x	y	z	cell	surf	u	v	w	energy	weight	time
1	1.103E+01	2.893E+01	2.980E+01	1	0	5.166E-01	5.185E-01	6.814E-01	1.400E+01	1.000E+00	0.000E+00
2	5.706E+00	1.097E+00	-1.445E+00	1	0	-8.244E-02	-9.427E-01	-3.233E-01	1.400E+01	1.000E+00	0.000E+00
3	-2.609E+01	-1.896E+01	2.719E+01	1	0	-7.618E-01	-6.038E-01	-2.346E-01	1.400E+01	1.000E+00	0.000E+00
4	-2.559E+01	-4.767E+00	-1.669E+01	1	0	1.557E-02	-9.797E-01	-1.998E-01	1.400E+01	1.000E+00	0.000E+00
5	1.052E+01	2.685E+00	-1.429E+01	1	0	7.831E-01	-1.660E-01	-5.994E-01	1.400E+01	1.000E+00	0.000E+00
6	-2.754E+01	1.604E+01	9.750E+00	1	0	-6.936E-01	6.748E-01	2.520E-01	1.400E+01	1.000E+00	0.000E+00
7	1.324E+00	3.560E+01	2.966E+00	1	0	2.292E-01	5.611E-01	-7.954E-01	1.400E+01	1.000E+00	0.000E+00
8	-1.885E+01	-2.449E+01	-2.538E+01	1	0	-8.157E-01	-5.283E-01	-2.355E-01	1.400E+01	1.000E+00	0.000E+00
9	2.224E+01	-4.933E+00	3.826E+01	1	0	-5.711E-01	9.797E-01	9.797E-01	1.400E+01	1.000E+00	0.000E+00
10	-1.526E+01	-1.540E+01	-2.155E+01	1	0	-1.526E-01	9.797E-01	9.797E-01	1.400E+01	1.000E+00	0.000E+00
11	-1.301E+01	1.572E+01	1.851E+01	1	0	-1.301E-01	9.797E-01	9.797E-01	1.400E+01	1.000E+00	0.000E+00
12	-2.617E-01	3.118E+01	2.992E+00	1	0	-2.617E-01	9.797E-01	9.797E-01	1.400E+01	1.000E+00	0.000E+00
13	3.223E+00	8.016E-01	2.322E+01	1	0	3.223E+00	9.797E-01	9.797E-01	1.400E+01	1.000E+00	0.000E+00
14	1.498E+01	-2.329E+00	2.481E+01	1	0	1.498E+01	9.797E-01	9.797E-01	1.400E+01	1.000E+00	0.000E+00
15	-1.455E+01	1.042E+01	4.580E+01	1	0	-1.455E+01	9.797E-01	9.797E-01	1.400E+01	1.000E+00	0.000E+00
16	6.972E+00	-4.913E+01	6.009E+00	1	0	-1.418E-01	9.797E-01	9.797E-01	1.400E+01	1.000E+00	0.000E+00
17	-5.505E+00	-6.757E+00	6.604E+00	1	0	-9.929E-01	-1.111E-01	2.391E-02	1.400E+01	1.000E+00	0.000E+00
18	-1.811E+01	2.055E+01	2.941E+01	1	0	5.765E-01	-5.111E-01	-6.319E-01	1.400E+01	1.000E+00	0.000E+00
19	-6.271E-01	-2.125E+01	2.668E+01	1	0	1.294E-01	9.811E-01	-1.336E-01	1.400E+01	1.000E+00	0.000E+00
20	-2.452E+01	-3.792E+01	7.960E+00	1	0	-2.452E+01	-9.811E-01	-5.451E-02	1.400E+01	1.000E+00	0.000E+00
21	-2.503E+01	2.975E+01	-2.302E+01	1	0	-2.503E+01	9.811E-01	5.451E-02	1.400E+01	1.000E+00	0.000E+00
22	2.948E+01	1.162E+01	-3.607E+00	1	0	2.948E+01	9.811E-01	5.451E-02	1.400E+01	1.000E+00	0.000E+00
23	-2.945E+01	-2.535E+01	-1.893E+01	1	0	-2.945E+01	9.811E-01	5.451E-02	1.400E+01	1.000E+00	0.000E+00
24	3.450E+01	5.145E+00	1.877E+01	1	0	3.450E+01	9.811E-01	5.451E-02	1.400E+01	1.000E+00	0.000E+00
25	-3.871E+01	-3.830E-01	-1.752E+01	1	0	-3.871E+01	9.811E-01	5.451E-02	1.400E+01	1.000E+00	0.000E+00
26	6.131E+00	2.656E+01	1.775E+00	1	0	6.131E+00	9.811E-01	5.451E-02	1.400E+01	1.000E+00	0.000E+00
27	-1.371E+01	-4.050E+01	-7.130E+00	1	0	-1.371E+01	9.811E-01	5.451E-02	1.400E+01	1.000E+00	0.000E+00
28	2.752E+00	-1.778E+01	5.055E+00	1	0	2.752E+00	9.811E-01	5.451E-02	1.400E+01	1.000E+00	0.000E+00
29	-9.243E+00	-1.925E+01	-1.619E+01	1	0	-9.243E+00	9.811E-01	5.451E-02	1.400E+01	1.000E+00	0.000E+00
30	-3.137E+00	3.109E+00	-3.280E+00	1	0	-3.137E+00	9.811E-01	5.451E-02	1.400E+01	1.000E+00	0.000E+00
31	2.410E+01	9.443E-01	3.220E+01	1	0	2.410E+01	9.811E-01	5.451E-02	1.400E+01	1.000E+00	0.000E+00
32	1.579E+01	-2.035E+01	1.673E+01	1	0	1.579E+01	9.811E-01	5.451E-02	1.400E+01	1.000E+00	0.000E+00
33	3.082E+01	-6.544E+00	1.756E+00	1	0	3.082E+01	9.811E-01	5.451E-02	1.400E+01	1.000E+00	0.000E+00
34	2.029E+01	1.402E+01	-4.020E+01	1	0	2.029E+01	9.811E-01	5.451E-02	1.400E+01	1.000E+00	0.000E+00
35	4.038E+01	1.954E+01	-1.793E+00	1	0	4.038E+01	9.811E-01	5.451E-02	1.400E+01	1.000E+00	0.000E+00
36	1.452E+01	-4.202E-01	5.715E+00	1	0	1.452E+01	9.811E-01	5.451E-02	1.400E+01	1.000E+00	0.000E+00
37	-4.916E-01	2.569E+00	-3.041E-01	1	0	-4.916E-01	9.811E-01	5.451E-02	1.400E+01	1.000E+00	0.000E+00
38	4.293E+00	-3.291E+01	1.823E+01	1	0	4.293E+00	9.811E-01	5.451E-02	1.400E+01	1.000E+00	0.000E+00
39	-5.483E+00	-2.755E+01	-2.222E+00	1	0	-5.483E+00	9.811E-01	5.451E-02	1.400E+01	1.000E+00	0.000E+00
40	4.316E+00	-2.220E+01	3.499E+00	1	0	-7.220E-01	-3.510E-01	5.963E-01	1.400E+01	1.000E+00	0.000E+00

Looks good to me.



# Plot the Source

Oh no, I forgot the  
AXS on my source.



And RAD is constant.

