

# McStas and Mantid

===McStas compiling and running===

McStas 2.1 event data and the corresponding IDF for Mantid are generated as follows using these commands from an xterm:

- Compile McStas instrument code
  - `mcstas templateSANS_Mantid.instr --trace`
- Compile c code
  - `gcc -o templateSANS_Mantid.out templateSANS_Mantid.c -lm -DUSE_NEXUS -lNeXus`
- Generate IDF
  - `mcdisplay templateSANS_Mantid.instr --format=Mantid -n0`
- Run simulation
  - `./templateSANS_Mantid.out --format=Nexus`

The `templateSANS_Mantid.instr` file used in the above example can be found in McStas neutron suite.

===McStas event data conventions===

For McStas to auto generate an IDF the McStas instrument file must obey:

- McStas instrument file name and the McStas defined name of the instrument must be the same
  - E.g. `templateSANS_Mantid.instr` and `"DEFINE INSTRUMENT templateSANS_Mantid(...)"`
- In the McStas instrument file the source must be named "sourceMantid"
  - E.g. `"COMPONENT sourceMantid = Source_simple(...)"`
- In the McStas instrument file the sample must be named "sampleMantid"
  - E.g. `"COMPONENT sampleMantid = Sans_spheres(...)"`
- In the McStas instrument file the event monitors must be named "nD\_Mantid\_#"
  - E.g. `"COMPONENT nD_Mantid_1 = Monitor_nD(...)"`

The McStas component `monitor_nD` must be called with the argument: `options ="mantid square x limits=-0.2 0.2 bins=128 y limits=-0.2 0.2 bins=128, neutron pixel t, list all neutrons"`. Number of bins and limits can be chosen freely.

===Tested versions===

The new features added to McStas has been tested on the following platforms:

- Linux
- Mac
  - \*\*Use either the Intel or gcc 4.8 compiler. Simulations using Nexus format and event data does not work using the Clang compiler.