Monitor documentation

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1 Possibilities

With a monitor, you can see the positions, velocities, forces of chosen particles directly in the GUI or save it into files (readable with Gnuplot)
(See **Figure 1** to look at a monitor in action)

2 How to add a monitor to your scene

1. In a XML file :
   Simply write "Monitor" for the *type* field; type "ExportPositions", "ExportVelocities" or "ExportForces" to true if you want to export positions, velocities or forces in files (Can also be done after in the GUI). Finally, to tell which particle(s) you want to monitor, type "MonitoredParticles" followed by :

   P *"number of positions to monitor, 0 if none"* [*"indices of the particles"*]
   V *"number of velocities to monitor, 0 if none"* [*"indices of the particles"*]
   F *"number of forces to monitor, 0 if none"* [*"indices of the particles"*]

   For example : P3 [12 4 0] V0 [] F5 [1 2 3 4 5]

   You can also see the "monitoredBeamSpring.scn" file for an example (located in the *examples/Components/monitor* directory)

2. In a c++ file :
   Include first the Monitor header located in *sofa/component/misc/*. You must then define three vectors which will contain the indices :

   ```
   sofa::helper::vector <int> posIndices;
   sofa::helper::vector <int> velsIndices;
   sofa::helper::vector <int> forcesIndices;
   ```

   then add to the vectors the indices of particles you want to monitor (with the *push_back* function)

   Finally, give those vectors to the monitor with the following member functions :

   ```
   void setIndPos (sofa::helper::vector <int>);
   void setIndVels (sofa::helper::vector <int>);
   void setIndForces (sofa::helper::vector <int>);
   ```

3 Interact with the monitor

Once the scene launched, if you click on the monitor node in the graph, you should have something like :

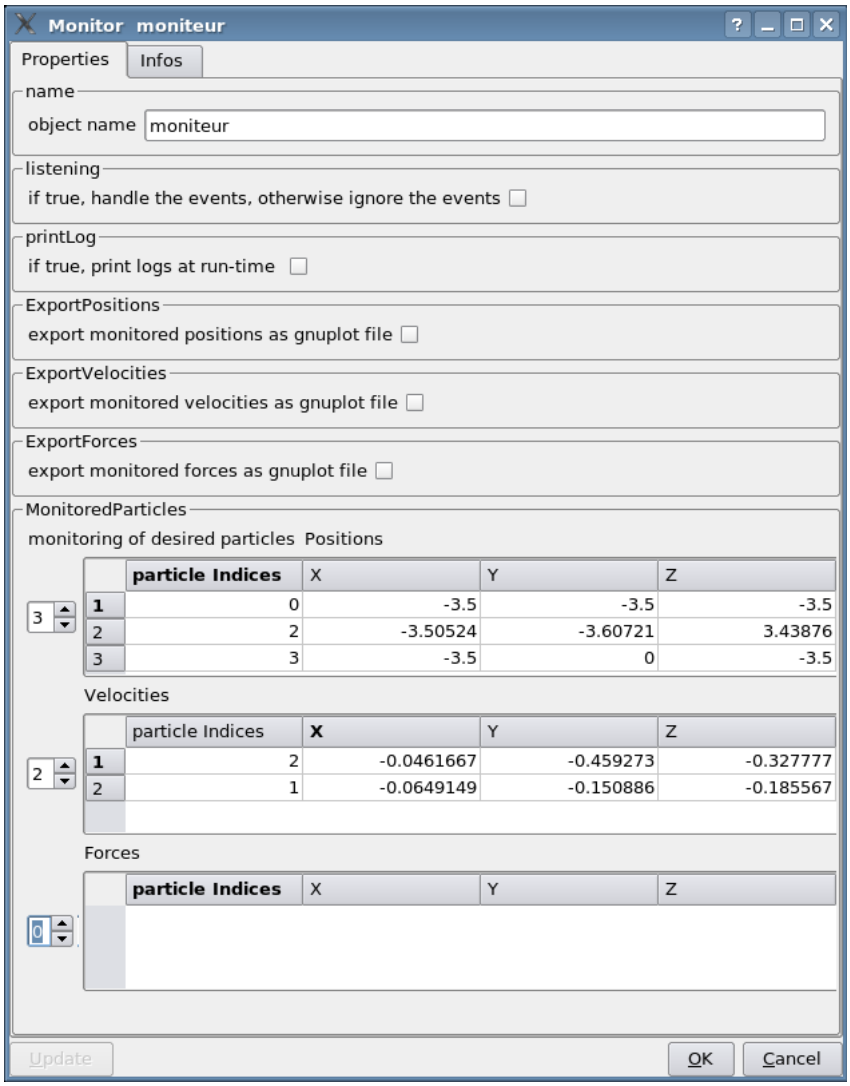

Figure 1: Example of monitoring tab

By clicking on one of the *particle Indices* boxes, you can change the number of the particle monitored. With the *spinBox* on the left, you can add or remove particles to monitor.