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How to create your GEAR XML steering file

This post is a small guide on how to create your own GEAR file with GEAR v0.12, the first with multi-module capabilities. I will include a code example for each section of the description.

The root element of any GEAR XML steering file is `gear`

Children of `gear`

The only element that are currently looked for in the first layer of the tree structure of the XML file are:

- `global` which can only contain the attribute `detectorName` which is a **string** that defines, guess what, the detector name.
- `BField` which define the magnetic field in the detector and contain 4 attributes
 - ◆ `type` is a **string** which defines what implementation to use to create a magnetic field object. As of August 2009 the only value available for this field is `ConstantBField`
 - ◆ `x` defines the x component of the B vector (**double**)
 - ◆ `y` defines the y component of the B vector (**double**)
 - ◆ `z` defines the z component of the B vector (**double**)
- `detectors` which contain a list of detector elements that will be described later

The first example of the first layer of the XML tree is:

```
<gear>
  <global detectorName="MyExperiment" />
  <BField type="ConstantBField" x="0." y="0." z="4.0" />
  <detectors>
    [Put your detector list here]
  </detectors>
</gear>
```

Defining your detector

The only type of element that can be defined as child of a `detectors` element is a `detector` (notice the lack of s). In fact the `detectors` element is but a list of `detector` items.

Each `detector` has two mandatory attributes which:

- `name` which is a custom identifier for the particular detector
- `geartype` which defines the specific type of the detector. This parameter is a string that must correspond to one of the gear detector types. For the TPC this is `TPCParameters`

The elements that can be contained in a `detector` are detector-specific. In the following I will describe the parameters necessary to describe a TPC.

Let's now fill the example a little more:

```
<gear>
  <global detectorName="MyExperiment" />
  <BField type="ConstantBField" x="0." y="0." z="4.0" />
  <detectors>
    <detector name="MyTPC" geartype="TPCParameters">
      [Define your TPC here]
    </detector>
  </detectors>
```

</gear>

[TO BE CONTINUED]

-- StefanoCaiazza - 14 Aug 2009

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