XML Detector Description in Context

XML Detector Description Workshop

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Scope of Detector Description

- **Encompasses the structure, composition, and time-dependent state of the detector**
- **Includes:**
  - logical structure
  - component identification
  - physical geometry
  - materials
  - readout geometry
  - alignment
  - calibration and other time-varying conditions

Does the XML effort need to address all of these?

NO, but...

Scope of Detector Description

- **Overall detector description effort must address all of these points**
- **Role and boundaries of XML effort must be understood in this more general context**
- **Requirements and use cases must be understood**
  - Example: One may say that detail filtering or parameterization is done at another level (e.g., via a simulation-specific adapter whose source is (in ATLAS, anway) a generic model supported by a transient detector description store), BUT if XML is the data source, this job may be easy or hard, depending upon the DTD or schema

Example Detector Description WBS

- **Requirements/scope**
- **Logical structure**
  - hierarchical organization
  - component identification
- **Physical structure**
  - physical geometry
  - material
  - alignment
- **Readout structure**
  - readout geometry
- **Time-dependent state**
  - calibration
- **...**

XML Detector Description in ATLAS

- **Emphasis to date has been on XML for physical geometry and materials, with implicit support for generation of identifiers, and some logical structure implicit in name fields**
- **XML could, of course, be used more systematically for logical detector description**
- **Currently overlaps several areas without ultimate responsibility for supporting those areas**

Questions

- **Should we use XML for description of LOGICAL structure?**
- **Is it an explicit requirement that component identifiers be generatable from the XML source?**
- **How can we assess whether physical geometry description is adequate and appropriate for simulation use cases?**
- **How are physical and readout geometries related, and what is the role of XML in defining or supporting that relationship?**