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A General Jet Tagging Environment for the ATLAS Detector Reconstruction Software

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The design of a general jet tagging algorithm for the ATLAS detector reconstruction software is presented.

For many physics analyses, reliable and efficient flavour identification, 'tagging', of jets is vital in the process of reconstructing the physics content of the event. To allow for a broad range of identification methods emphasis is put on the flexibility of the framework. A guiding design principles of the jet tagging software is a strong focus on modularity and defined interfaces using the advantages of the new ATLAS Event Data Model and object oriented C++. The benefit for the developer is modularity of the design in terms of expandability of the tagging software with additional and modified algorithms. The user profits from common interfaces to all algorithms and also from a simple jet tagging configuration. The usage of different methods, re-doing the tagging procedure with a modified setup and combining the results from various methods during the analysis.

The ATLAS b-tagging algorithms have been migrated into this new jet tagging environment and the concrete implementation is used to demonstrate the benefits of the proposed design.

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