

# Steering the ATLAS High Level Trigger

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This paper describes an analysis and conceptual design for the steering of the ATLAS High Level Trigger (HLT). The steering is the framework that organises the event selection software. It implements the key event selection strategies of the ATLAS trigger, which are designed to minimise processing time and data transfers: reconstruction within regions of interest, menu-driven selection and fast rejection. This analysis also considers the needs of online trigger operation, and offline data analysis. The design addresses both the static configuration and dynamic steering of event selection. Trigger menus describe the signatures required to accept an event at each stage of processing. The signatures are arranged in chains through these steps to ensure coherent selection. The event processing is broken into a series of sequential steps. At each step the steering will call algorithms needed according to the valid signatures from the previous step, the existing data and the signatures that it should attempt to validate for the next decision. After each step the event can be rejected if it no longer satisfies any signatures. The same steering software runs in both offline and online software environments, so the impact of the HLT on physics analysis can be directly assessed.

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