

Event Selector Description

Iain Last

1.0 Purpose.

The event selector will be used by the end user to select events with given physics properties from all the available events or a given set of events.

2.0 Responsibilities.

For a given input event collection (possibly all events) the selector will return an event collection that corresponds to any of the following:

- Events within a given time frame - this may produce multiple versions (reprocessings) of the same event.
- Valid events for a given set of calibration data / detector conditions / ... (basically anything in the “marker” that is not part of the event tag.)
- Events whose event tag satisfies some selection criteria.

The event collection may be stored in a persistent event store¹ for later use therefore the event selector should be allowed to perform quite complicated analysis of event conditions and tags.

The returned event collection may be input into a second event selector. This leaves it up to the user as to which is the optimal path for producing the final event collection. The final event collection should store the information of all the selections that have been used to produce it.

3.0 Dependencies.

- Transient Data Service, **IDataProviderSvc**, is used to access event tags, calibration data, etc.
- Something is needed to generate the initial event set.

1. This may be a public store with “approved” event collections for various physics analysis tasks e.g. Higgs candidate events, or it may be a user’s private store.

4.0 Class Names and Packaging.

<i>Class</i>	<i>Package</i>	<i>Description</i>
EventSelector : public ISelector	Selectors	Used to select events from a given list of events (possibly all events) which satisfy certain criteria.
EventSet : public IObjectSet	Selectors	Used to provide an input set of events for the EventSelector and also contains its returned set of events.

5.0 Use Cases.

- A physicist may wish to take an event collection, all events or Higgs candidate events, and refine the event collection using his own, more stringent, selection criteria.
- A physicist may wish to find the intersection of two or more event collections.
-