Advanced European Infrastructures for Detectors at Accelerators

DDEve

An Event Display for DD4hep Geometries

– DRAFT –

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DDEve User Manual

Abstract

`DDEve` is a framework implementing a event display for detector geometries implemented using DD4hep. `DDEve` hereby takes advantage of the TEve toolkit naturally provided by the ROOT framework like the ROOT geometry toolkit TGeo. `DDEve` actively uses the collaboration between TEve and TGeo as well as the various object collaborations provided by the toolkits. `DDEve` does in no way intend to hide any of the two toolkits, but rather provides facilities to construct various detector views in the most suitable manner using predefined configurations.

Document History		
Document version	**Date**	**Author**
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1 Introduction

Short usage description of DDEve .
DDEve is a purely experimental package. It was developed to

- visually debug developed detector geometries including partial views using predefined displays.
- compensate the frustration caused by the slow progress of subdetector geometry implementers, which did not get up to speed and hence did not require any support from me.....

Since up to now DDEve is a hobby of mine, please do not expect a great deal of documentation and support.

2 Running the CLICSiD Example

DDEve is started using the root executable. In the following we describe how to start a display application of DDEve using the CLICSiD example.

```
$> root.exe $DD4hepINSTALL/examples/DDEve/DDEve.C
```

When the command is issued the following display shows up:

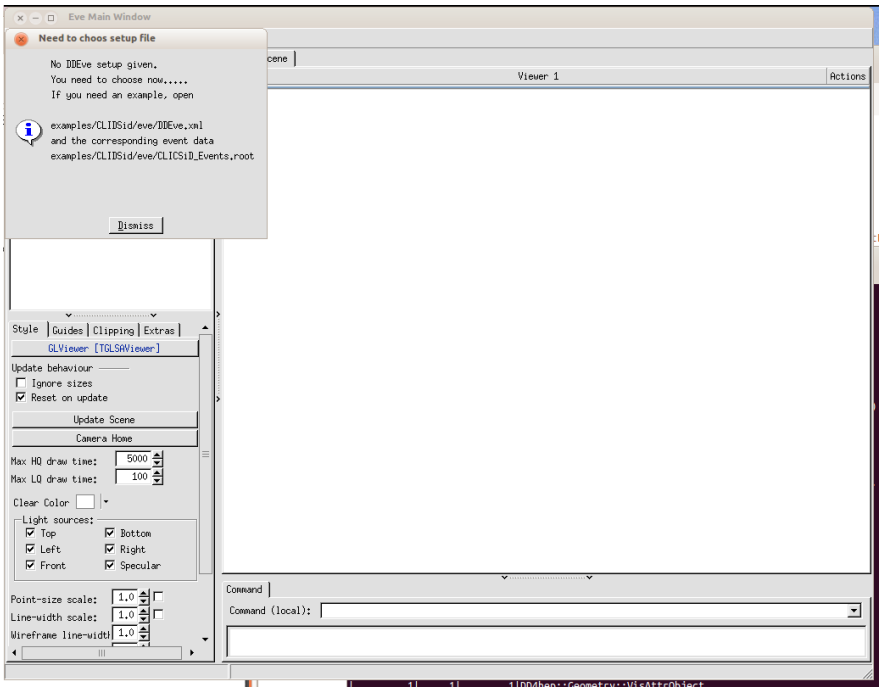

Figure 1: The DDEve startup view.

Click on "Dismiss" then the file browser opens and you have to select a `DDEve` configuration file:

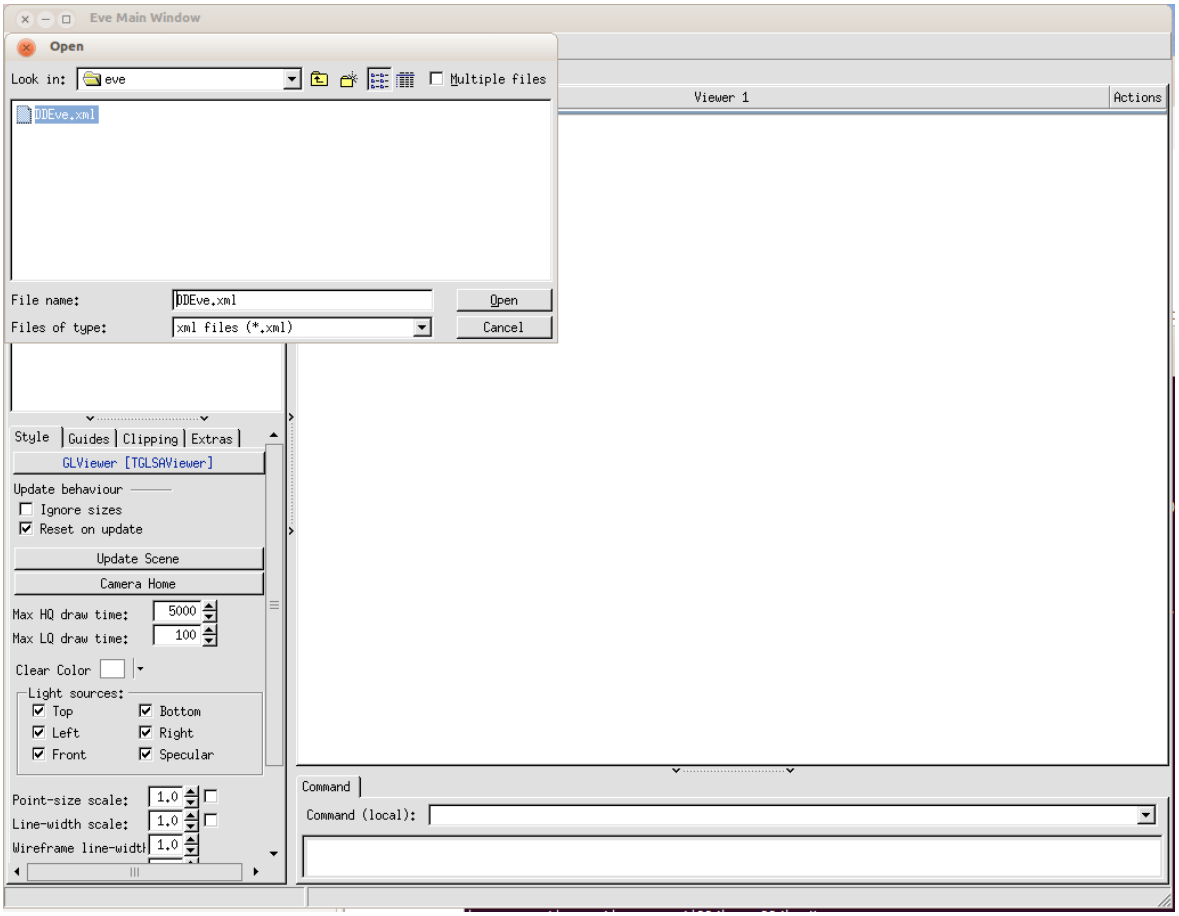

Figure 2: The `DDEve` popup dialog to open the XML configuration file.

Move to the directory `$DD4hepINSTALL/examples/CLIDSid/eve` and open the `DDEve` configuration file `DDEve.xml`. The basic idea is that `DDEve` as an application is truely generic and that all subsequent behavior

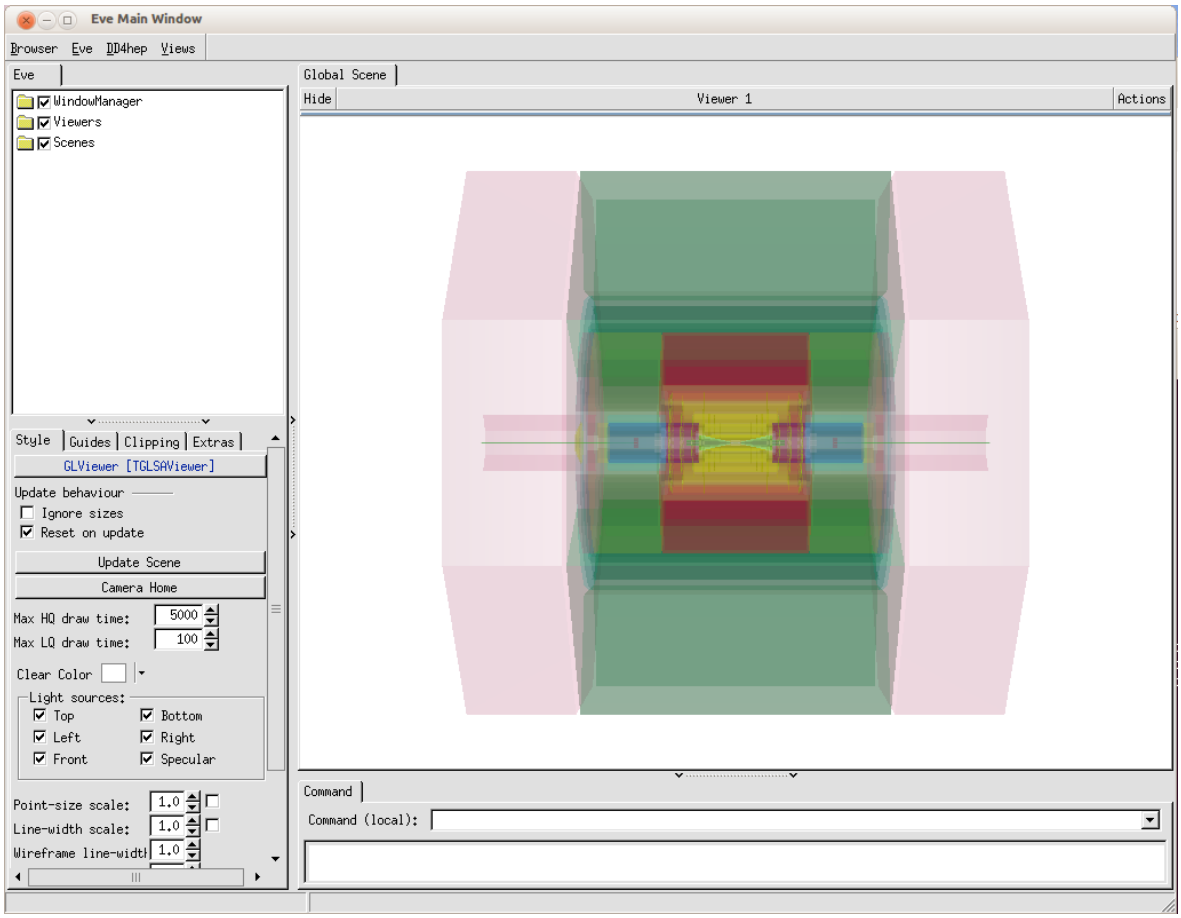

Figure 3: The `DDEve` default view showing the loaded detector.

Next you should see the default pane with the instantiated CLICSiD detector:

Then open from the "DD4hep" menu the item "Open Event Data". Move again to the directory $DD4hepINSTALL/examples/CL and open the sample file CLICSiD_Events.root containing a sample of events being the output of a DDG4 simulation step:

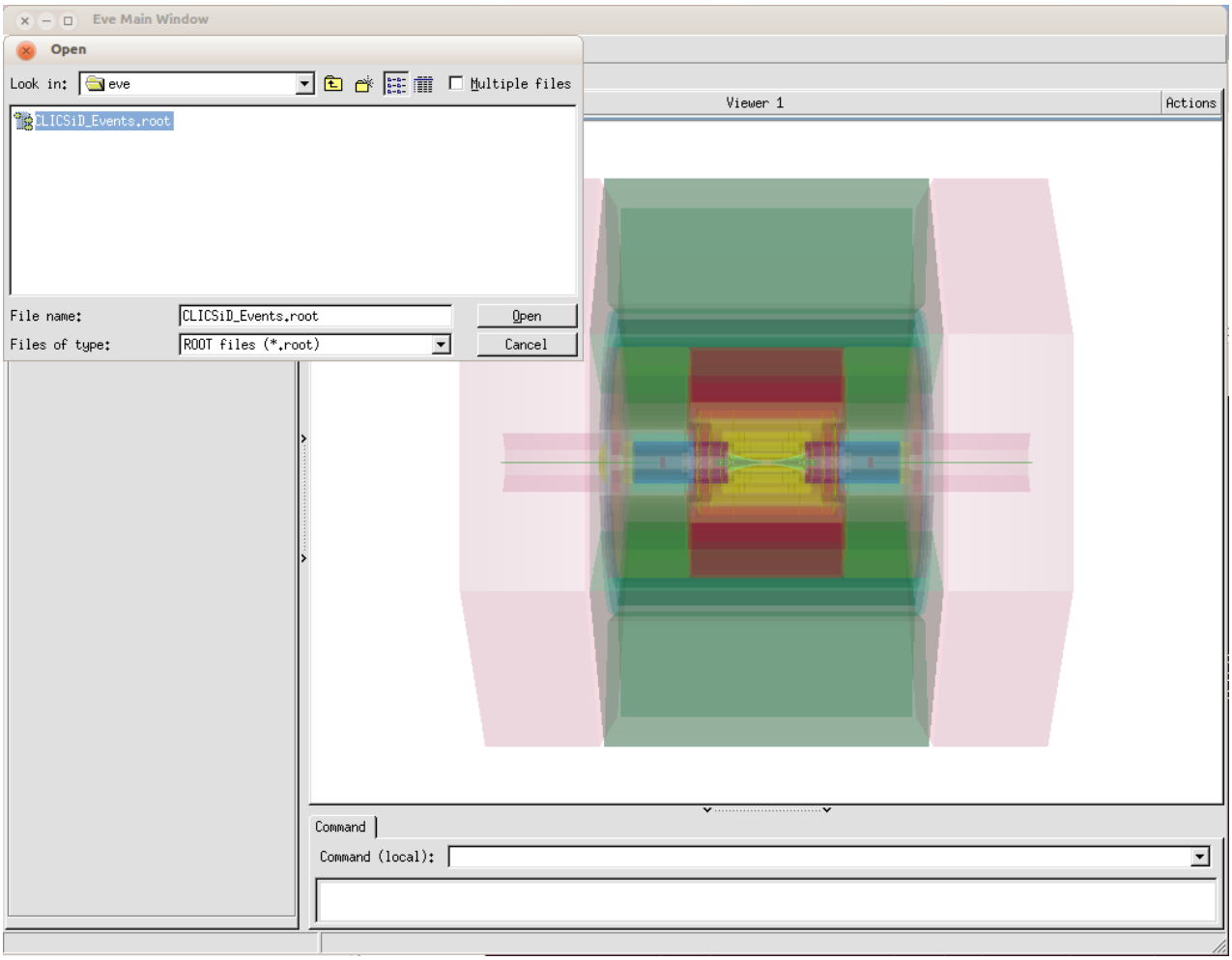

Figure 4: The popup dialog to open event data files.

Using the "Views" menu other predefined detector views may be used.

The `"Eve"` tab on the pane to the left allows to further customize the predefined views, the `Evt I/O` tab to control which event should be displayed.

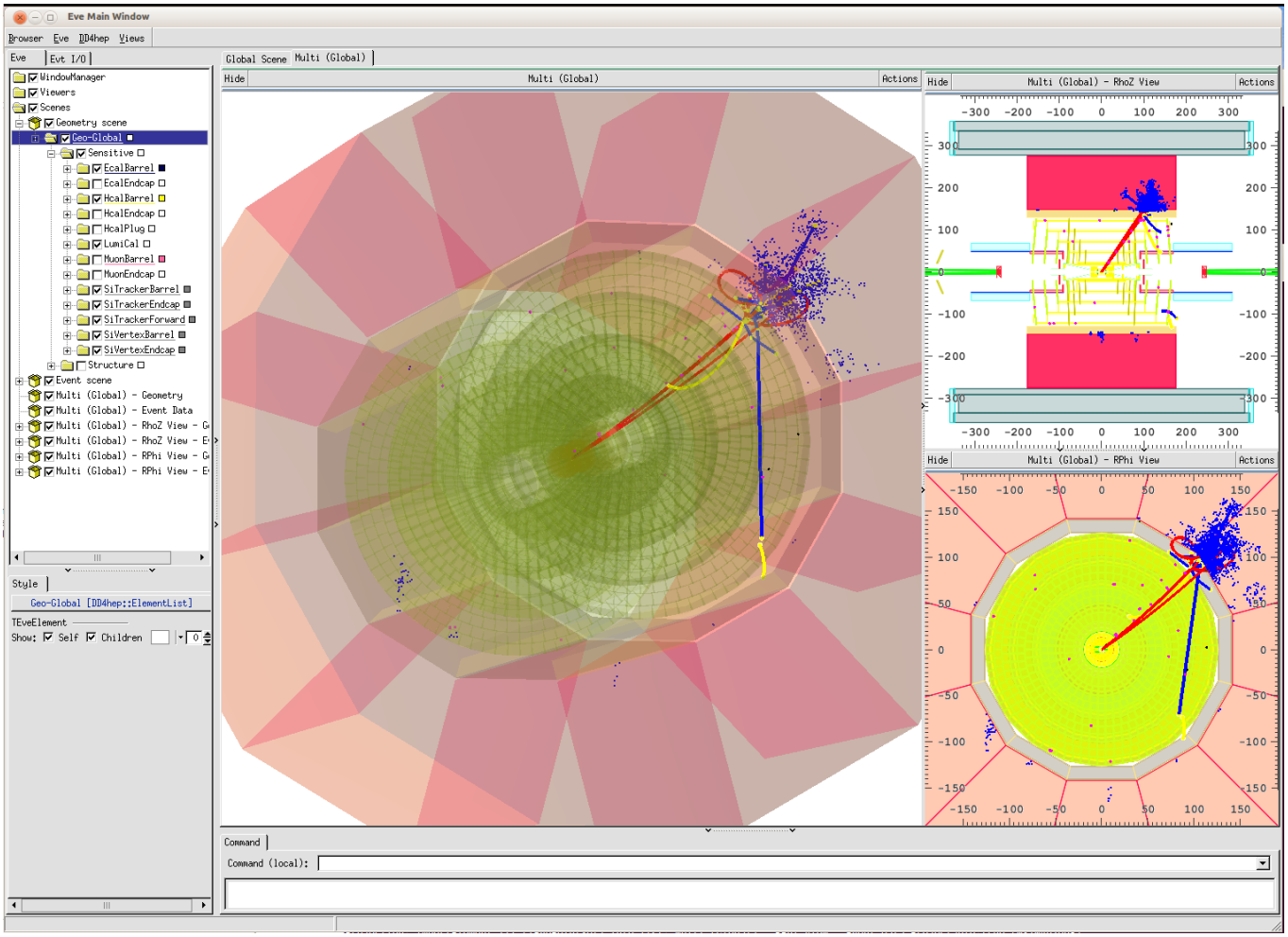

Figure 5: An example of a customized view with sub-panes. Please proceed to the XML configuration file how to create a predefined view.

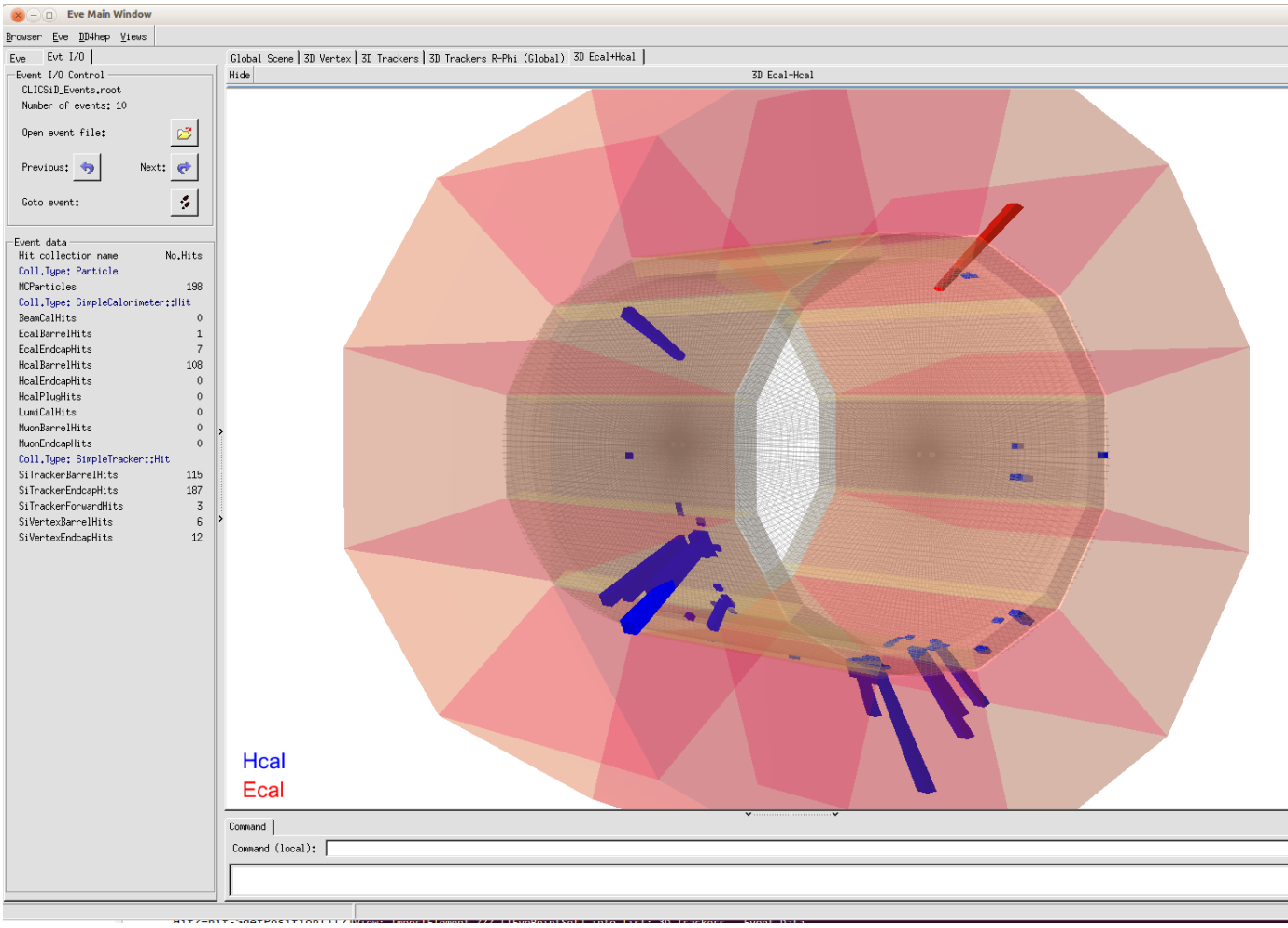

Figure 6: Calorimetr energy deposits in the ECAL (red) and the HCAL(blue).

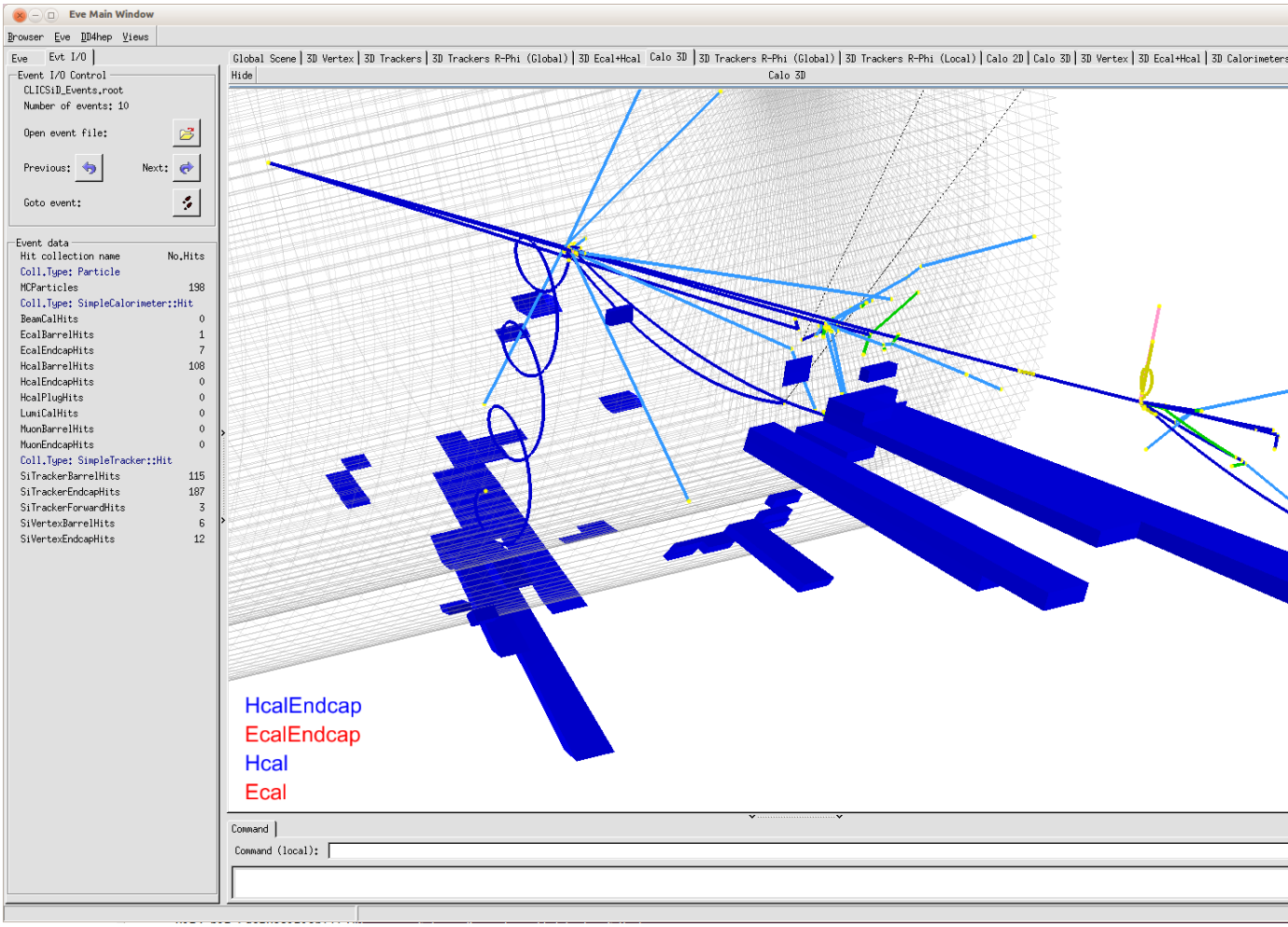

Figure 7: HCAL calorimeter deposits together with Monte-Carlo tracks.

3 View Configuration

This part of the `DDEve` application is not really stable. to configure displays other than for the `CLICSiD` example, you have to use the trial and error approach. Starting from the `CLICSiD` example is not too bad an approach.

References

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