

Dmitry Onoprienko

(Updated) Old
Calorimeter Assisted Tracking
Infrastructure Classes

SLAC, May 2007

Geometry Representation

Package org.lcsim.contrib.onoprien.tracking.geom

Interface Summary

SensorType	Any class that implements this interface defines a particular shape of silicon sensor and its segmentation into strips or pixels.
----------------------------	---

Class Summary

SegmentationManager	Handles caching and run-time access to Sensor objects and segmentation information.
Segmenter	Base class for defining segmentation of a particular part of the detector.
Sensor	Representation of a silicon sensor that can be further divided into strips or pixels.

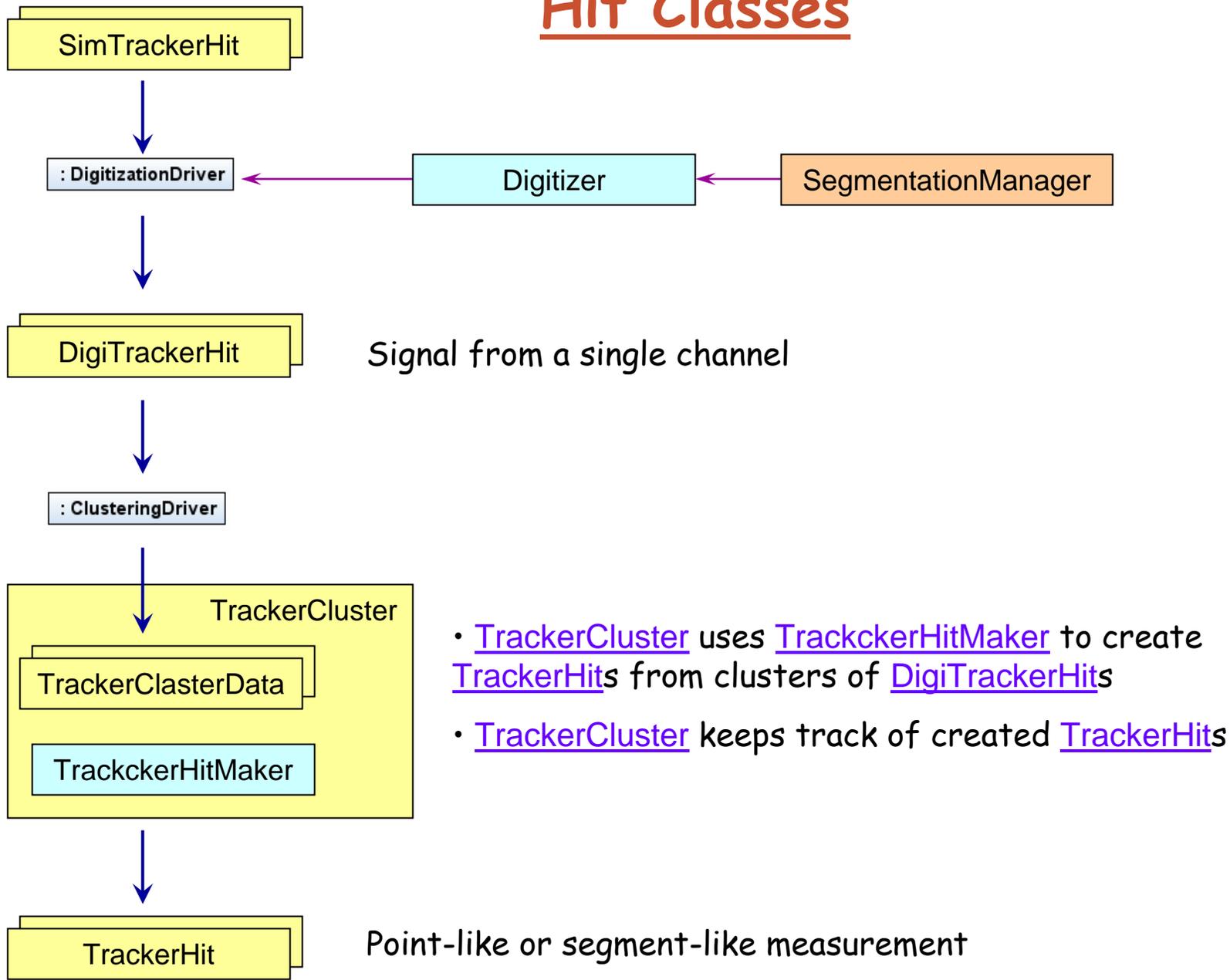
Each readout channel is identified by a combination of [Sensor](#) object it belongs to, and an integer ChannelID.

[Sensor](#) objects are created as needed, but remain in cache until and unless JVM runs out of memory - [SegmentationManager](#) takes care of that.

Segmentation is build by hand on top of geometry obtained from "compact description":

```
public ExampleDriver() {  
  
    // Segmentation description :  
  
    SubdetectorBasedSegmentation segmentationManager = new SubdetectorBasedSegmentation();  
  
    CylindricalBarrelSegmenter vtxBarrelSegmenter = new CylindricalBarrelSegmenter("VertexBarrel");  
    vtxBarrelSegmenter.setStripLength(5.*Const.micrometer);  
    vtxBarrelSegmenter.setStripWidth(5.*Const.micrometer);  
    segmentationManager.addSegmenter("VertexBarrel", vtxBarrelSegmenter);  
  
    CylindricalBarrelSegmenter trackerBarrelSegmenter = new CylindricalBarrelSegmenter("TrackerBarrel");  
    trackerBarrelSegmenter.setStripLength(10.*Const.cm);  
    trackerBarrelSegmenter.setStripWidth(5.*Const.micrometer);  
    segmentationManager.addSegmenter("TrackerBarrel", trackerBarrelSegmenter);  
  
    RingSegmenter vtxEndcapSegmenter = new RingSegmenter("VertexEndcap");  
    vtxEndcapSegmenter.setStripLength(5.*Const.micrometer);  
    vtxEndcapSegmenter.setStripWidth(5.*Const.micrometer);  
    segmentationManager.addSegmenter("VertexEndcap", vtxEndcapSegmenter);  
  
    RingSegmenter forwardSegmenter = new RingSegmenter("TrackerForward");  
    forwardSegmenter.setStripLength(5.*Const.micrometer);  
    forwardSegmenter.setStripWidth(5.*Const.micrometer);  
    segmentationManager.addSegmenter("TrackerForward", forwardSegmenter);  
  
    RingSegmenter trackerEndcapSegmenter = new RingSegmenter("TrackerEndcap");  
    trackerEndcapSegmenter.setStripLength(10.*Const.cm);  
    trackerEndcapSegmenter.setStripWidth(5.*Const.micrometer);  
    trackerEndcapSegmenter.setStereoAngle(45.*Const.degree);  
    segmentationManager.addSegmenter("TrackerEndcap", trackerEndcapSegmenter);  
  
    SegmentationManager.setDefaultInstance(segmentationManager);  
}
```

Hit Classes



Status

org.lcsim.contrib.onoprien.tracking.**

The package was originally written a year ago for studying calorimeter assisted tracking performance in the forward region.

Used for a while, further development abandoned mainly due to lack of time.

Updated/modified recently - mainly to get a feel for what new capabilities are needed, how to interface with geometry, etc.

Unfinished/untested.