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Using es_prefer to Decide Where Data Comes From

Complete:

Introduction

It is possible to configure the EventSetup such that multiple ESProducers or ESSources will tell the system that they want to deliver the same data. This can happen when doing calibration work where a job has configured the standard calibration database to deliver data but in the same job a calibration worker's own database has also been added which is meant to deliver the calibration being worked on. It is possible that both databases will tell the system they should be the provider for the particular calibration object.

In software release CMSSW_0_3_0 and before, the conflict was resolved by picking the last 'component' that was loaded into the job. As of software release CMSSW_0_4_0_pre1 it has been made an error. In software release CMSSW_0_4_0_pre2, one can use an `es_prefer` configuration option to state exactly which component should be used.

Syntax

Old cfg language:

```
es_prefer [module label] = <C++ class type> {
   [vstring <record name> = { [ "<C++ data type>"[/<data label>][,...]]}
}
```

New python configuration (GF: Not sure whether 'record name' part converted correctly to python.):

```
process.myPrefer = cms.ESPrefer("<C++ class type>" [,"<module label>"
                                [,<record name> = cms.vstring("<C++ data type>[/<data label>]"[
                                )
```

The items in square braces are optional.

The `[module label]` and `<C++ class type>` must match the values used for the ESProducer or ESSource which is being made the 'preferred' data provider.

If the body, i.e. info within the curly braces `{ }`, is empty then all data from that component is considered preferred.

The allowed parameters within the body are all `vstring` s where the name of the parameter, `<record name>` is the actual name of an EventSetup Record class which holds the data you want to be preferred. *NOT IMPLEMENTED YET: if the vstring is empty, then all data items in that Record will come from this component*. The values in the `vstring` are the C++ name of the data object and an optional label that is used to get that data. The C++ class name and the label are separated by a slash, `/`.

For the python configuration, the name `myPrefer` is not significant: any name can be used. To make multiple ESPrefer statements, set multiple variables as `myPrefer` above, giving a unique name to each.

Examples

Two ESProducers

```
es_module = GoodWidgetProducer { ... }
es_module = BadWidgetProducer {....}

#get our widgets from Good
es_prefer = GoodWidgetProducer {}
```

Two ESProducers using labels

```
es_module good = WidgetProducer { ... }
es_module bad = WidgetProducer {....}

#get our widgets from good
es_prefer good = WidgetProducer {}
```

An ESProducer and a ESSource and want ESProducer

```
es_source = WidgetESSource {...}
es_module = WidgetProducer {...}
#NOTE: no es_prefer needed since ESProducers automatically 'trump' ESSources
```

An ESProducer and a ESSource and want ESSource

```
es_source = WidgetESSource {...}
es_module = WidgetProducer {...}

#want from source
es_prefer = WidgetESSource {}
```

One item from ESSource everything else from ESProducer

```
es_source = ManyWidgetsESSource {...}
es_module = ManyWidgetsProducer {...}

#want the 'BestWidget' from source
es_prefer = ManyWidgetsESSource {
  vstring WidgetRecord = {"BestWidget"}
}
```

An ESProducer and an ESProducerLooper and want ESProducerLooper

```
looper = AlignmentESProducerLooper {...}
es_module = AlignmentESProducer {...}

#NOTE: no es_prefer needed since ESProducerLoopers automatically 'trump' ESProducers
```

An ESProducer and an ESProducerLooper and want ESProducer

```
looper =  AlignmentESProducerLooper {...}
es_module = AlignmentESProducer {...}

#want from non-looper source
es_prefer = AlignmentESProducer {...}
```

Review Status

Reviewer/Editor and Date (copy from screen)	Comments
ChrisDJones - 22 Dec 2005	page created. no further content edits since
JennyWilliams - 07 Feb 2007	editing to include in SWGuide

Responsible: ChrisDJones
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