

Kieker in Eclipse

A Plug-in for Application Performance Monitoring and Dynamic Analysis in Eclipse

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- Aspect-oriented programming (AspectJ)
- META-INF/aop.xml: excludes, aspects, pointcuts

```
<!DOCTYPE aspectj PUBLIC "-//AspectJ//DTD//EN" "http://www.aspectj.org/dtd/aspectj_1_5_0.dtd">

<aspectj>
  <weaver options="-showWeaveInfo">
    <exclude within="org.apache.commons.logging..*" />
    <exclude within="org.slf4j..*" />
    <exclude within="java.util.logging..*" />
    <exclude within="org.apache.log4j..*" />
  </weaver>

  <aspects>
    <aspect name="kieker.monitoring.probe.aspectj.flow.operationExecution.FullInstrumentationNoGetterAndSetter" />

    <concrete-aspect name="my.TargetedAspect"
      extends="kieker.monitoring.probe.aspectj.flow.operationExecution.AbstractAspect">
      <pointcut name="monitoredOperation" expression="execution(int kiekerFlow.TestFlow.getA())" />
    </concrete-aspect>

  </aspects>
</aspectj>
```

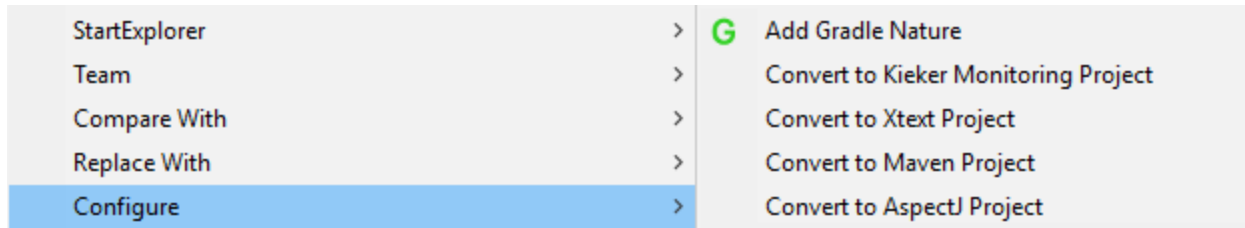
- META-INF/kieker.properties: writer configuration

```
kieker.monitoring.writer=kieker.monitoring.writer.tcp.TCPWriter
kieker.monitoring.writer.tcp.TCPWriter.hostname=localhost
kieker.monitoring.writer.tcp.TCPWriter.port1=10133
kieker.monitoring.writer.tcp.TCPWriter.port2=10134
kieker.monitoring.writer.tcp.TCPWriter.bufferSize=65535
kieker.monitoring.writer.tcp.TCPWriter.flush=false
kieker.monitoring.writer.tcp.TCPWriter.QueueSize=100
```

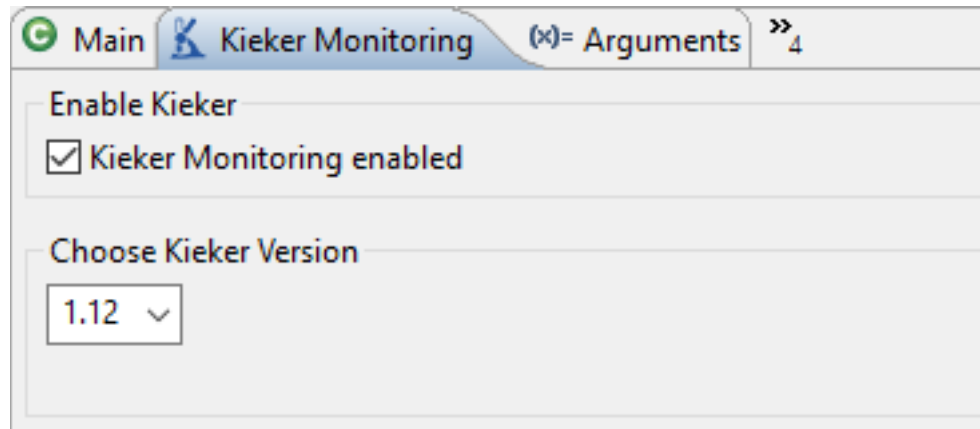
- Command line invocation:

```
java
-javaagent:kieker-1.12_aspectj.jar
-cp .; lib/*; ../parent-of-meta-inf
application.Main
```

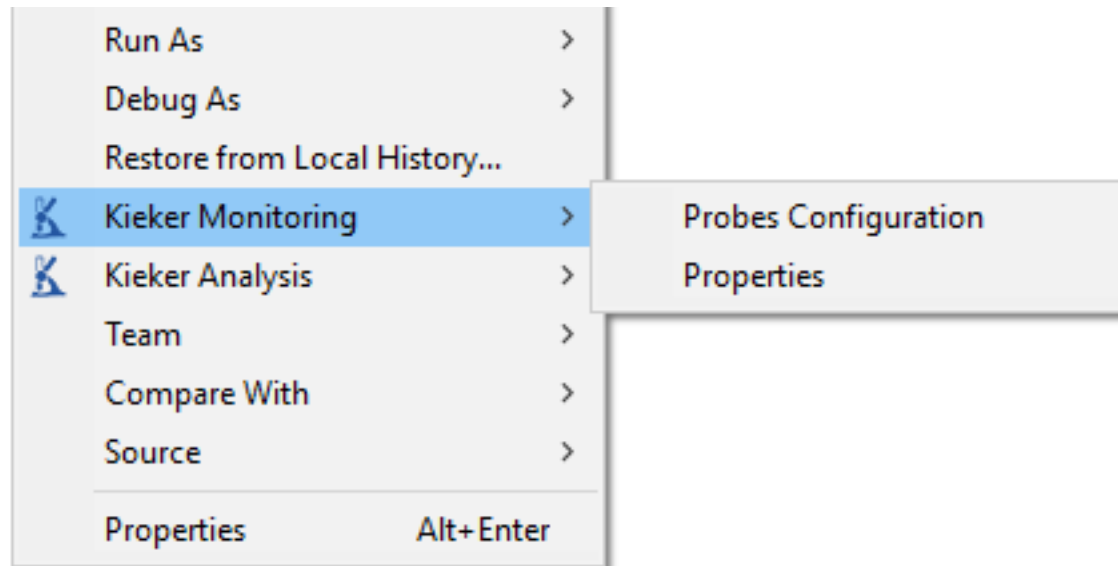
- Introduction
- Monitoring with the Kieker Plugin
- Analyzing with the Kieker Plugin
- Work in progress
- Conclusions



Kieker nature



New tab in Eclipse run configurations



Monitoring – Probe Configuration

AspectJ

Weaver

Options

- verbose
- showWeaveInfo
- Xjoinpoints:synchronization

Includes

Packages to instrument.
One line per include! When Includes is empty, everything will be included!

*

Excludes

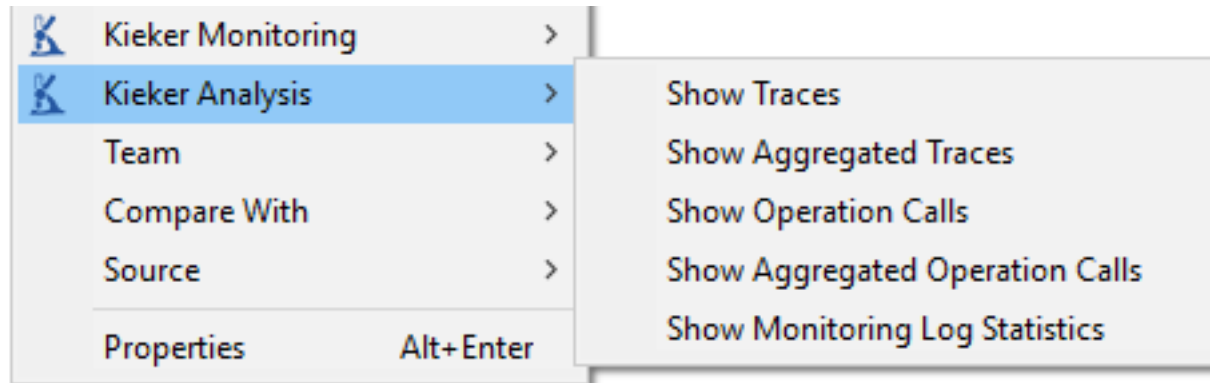
Sub packages (from above) to exclude.
One line per exclude! Important: The logger library that is configured to be used by Kieker must always be excluded, so the following packages are automatically excluded:
org.apache.commons.logging.*; org.slf4j.*; java.util.logging.*; org.apache.log4j.*

Probes

Predefined Probes kieker.monitoring.probe.aspectj.flow.operationExecution.FullInstrumentation

Custom Probe

Save Reset



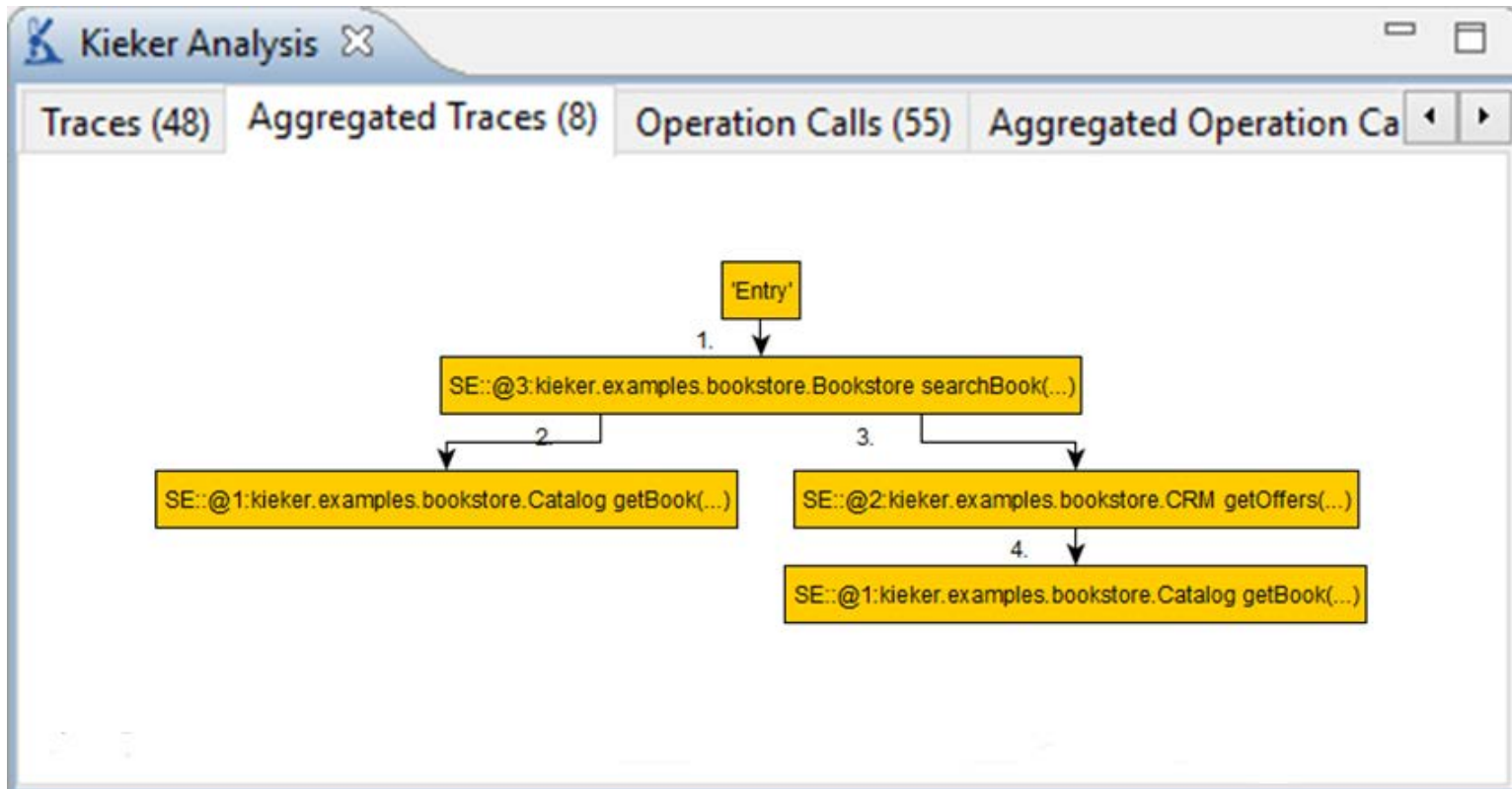
Analysis – Aggregated Traces

The screenshot shows the Kieker Analysis tool interface. The main window displays a table of aggregated traces. The table has columns for Operation, Component, Container, Calls, and Status. The 'exportHtml(...)' operation of the 'HtmlTableBuilderWorker' component is selected, and a context menu is open over it with the option 'Open File in Editor'. A secondary window shows the source code for 'HtmlTableBuilderWorker.java', with the 'exportHtml()' method highlighted in blue.

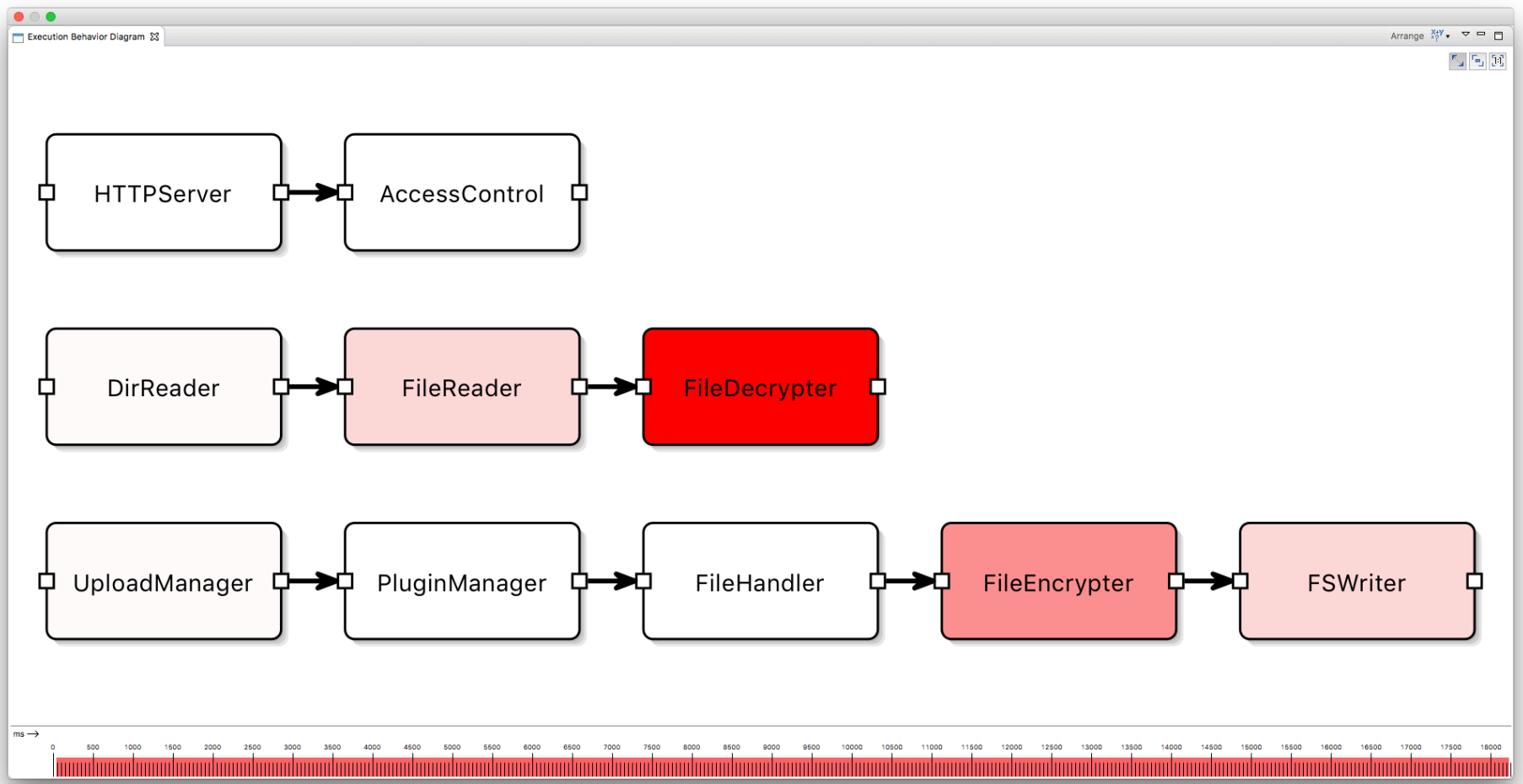
Operation	Component	Container	Calls	St
● onReceive(...)	StaticAnalyzer	Florian-NB	3	
● onReceive(...)	JavaFile2AstWorker	Florian-NB	8	
▼ ● onReceive(...)	HtmlTableBuilderWorker	Florian-NB	3	
● exportHtml(...)	HtmlTableBuilderWorker	Florian-NB	3	
● onReceiv	Open File in Editor	Florian-NB	21	
> ● onReceive(...)	FileWriterWorker	Florian-NB	3	
> ● onReceive(...)	Dir2JavaFilesWorker	Florian-NB	1	

```
HtmlTableBuilderWorker.java
    e.printStackTrace();
}
}

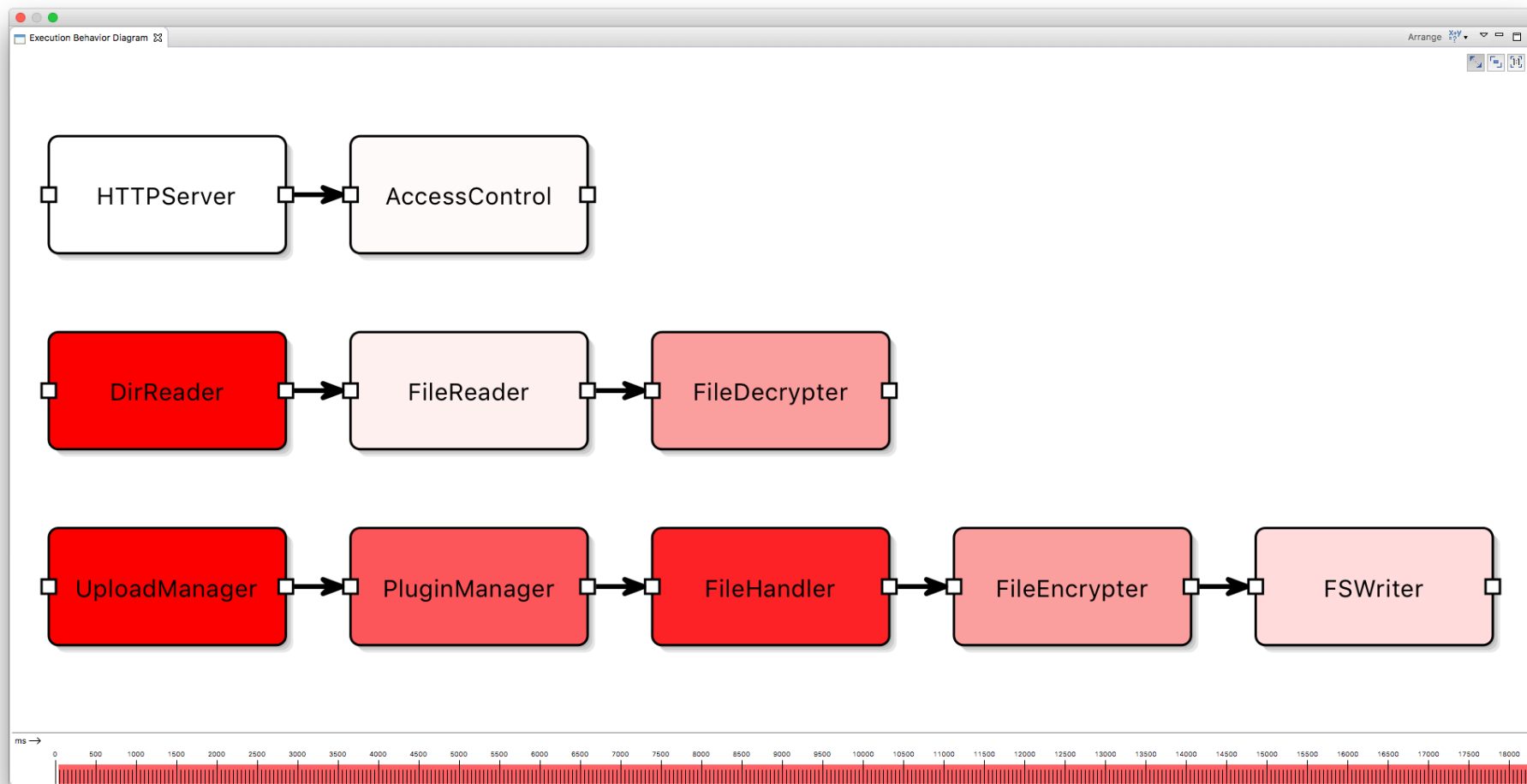
public void exportHtml() {
    try {
        html._table();
    } catch (Exception e) {
        e.printStackTrace();
    }
    fileWriter.tell(new FileWriterMessage(html.toH
})
}
```



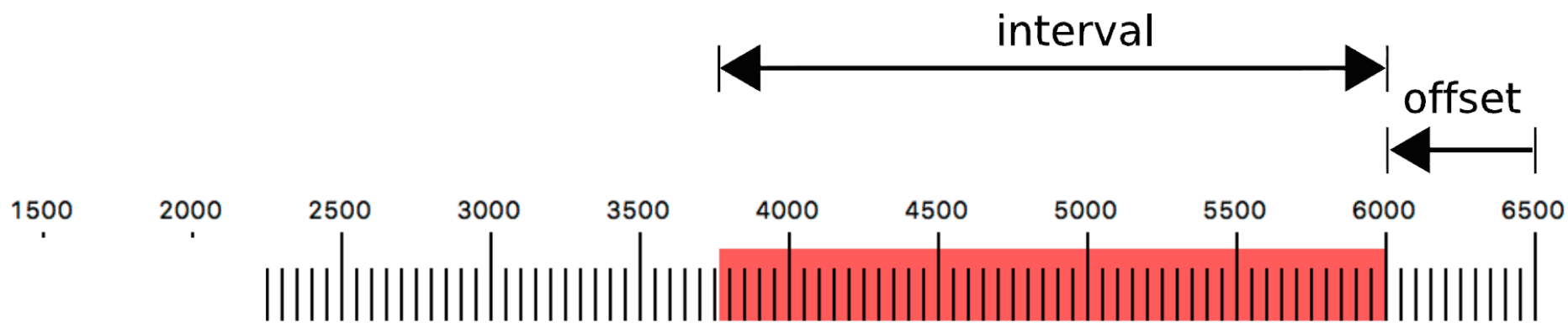
WIP: Execution Behavior Diagram (EBD)



Colored mean execution time per component execution

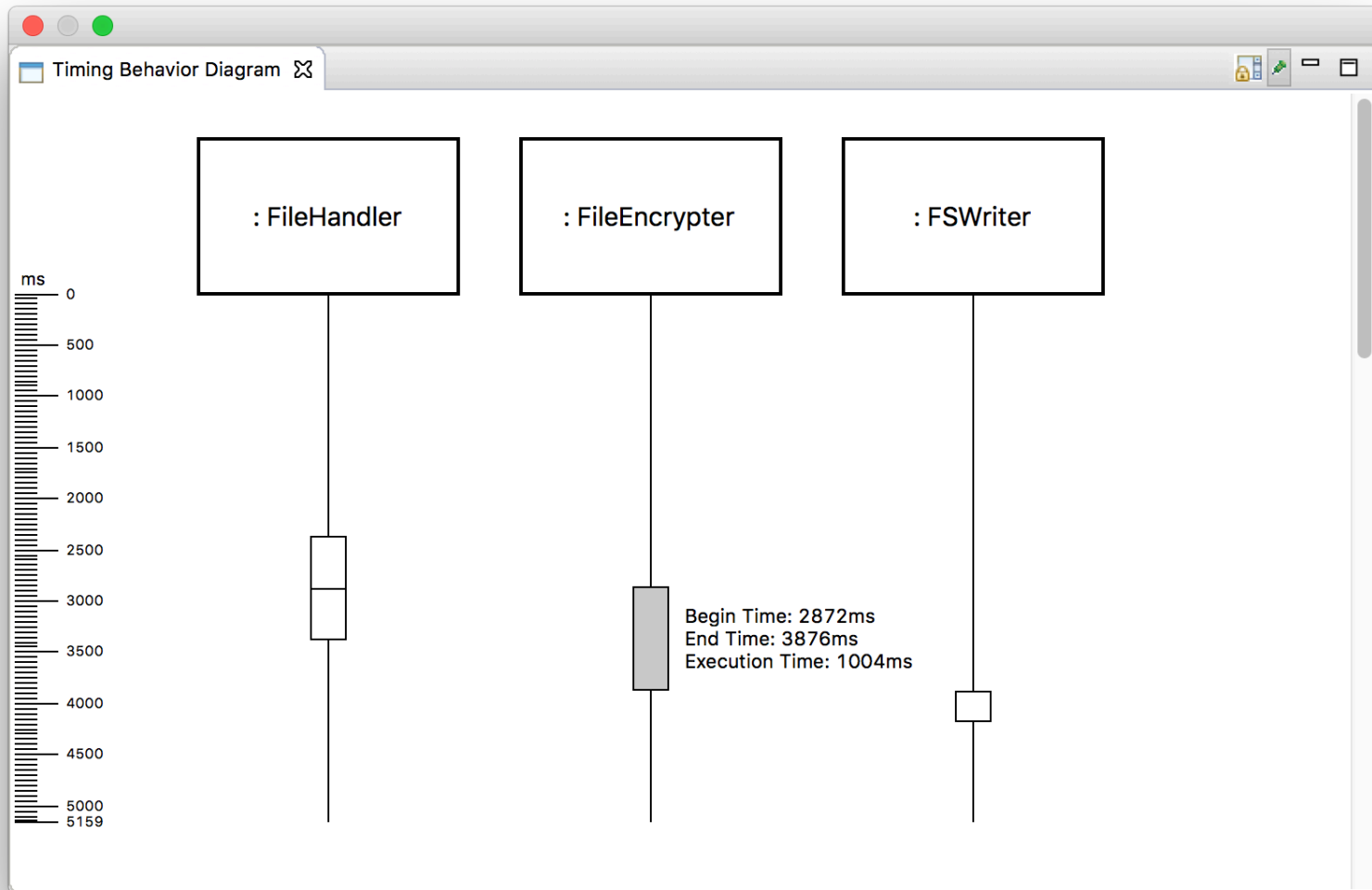


Colored overall execution time per component execution



Time scale showing a filter interval in red

WIP: Timing Behavior Diagram



- Open source Eclipse plugin¹ to ease monitoring and analysis with Kieker
- Abstracts from properties' file location and format
- Embeds analysis views



<http://kieker-monitoring.net>



<http://teetime.sourceforge.net>

Work in progress

- Trace visualization
- Execution behavior diagram
- Timing behavior diagram

¹ <https://build.se.informatik.uni-kiel.de/kieker/kieker-eclipse-plugin>