media computing group

RWTH AACHEN UNIVERSITY

Stacksplorer: Understanding Dynamic Program Behavior

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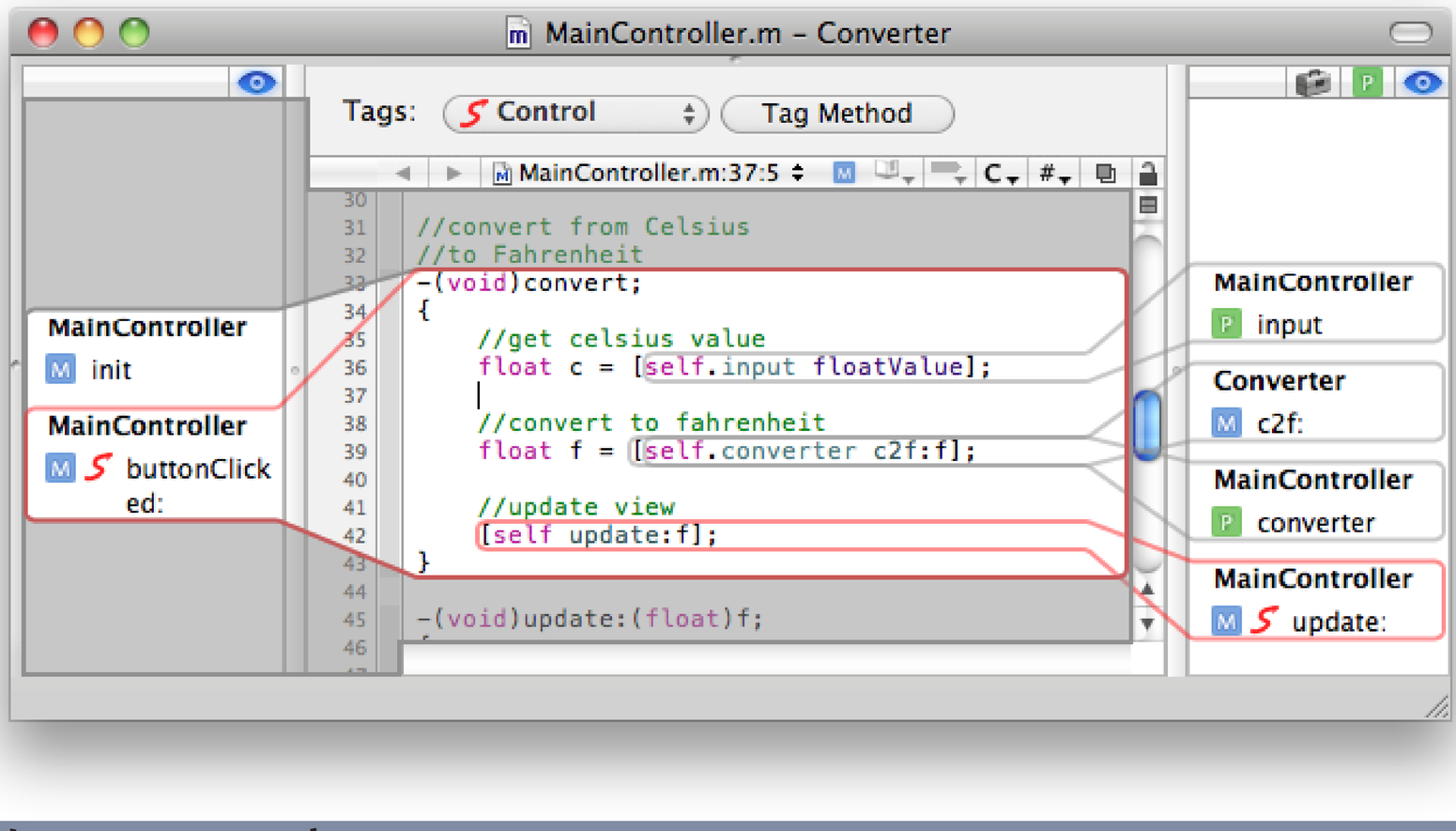
IDE Plug-In

Stacksplorer modifies the user interface of the Xcode integrated development environment (IDE) to visualize and navigate the neighborhood of any given method in the call graph. Stacksplorer lets developers see and access the callers "upstream" of a method, reducing the risk of introducing unintended side effects. They can also navigate downstream to understand how operations are implemented in an unknown piece of code. The call graph visualization helps developers retain the context of a method and simplifies exploring and backtracking along in- teresting branches of the call graph.

Clicking a method opens it in the editor. This enables navigation of potential call stacks along the horizontal axis.

Side columns are updated automatically.



User defined paths can store visited methods.

If the focus method and a method in a side column are on same path, their connection is colored.

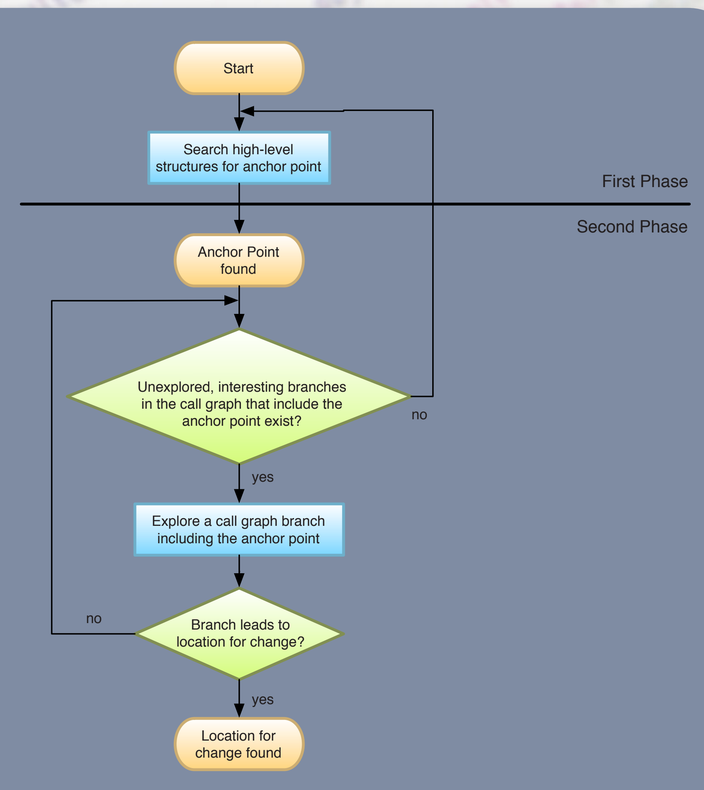
Methods calling the focus method

Code Editor
Cursor marks focus method

Methods called from the focus method

Support for Typical Code Navigation Behavior

Stacksplorer supports a very common high level strategy for finding the correct location to implement a change. When searching for a location for a change, developers usually start with an exploration phase, in which they searched for an anchor point. Once an anchor point is found, a traversal phase follows, in which develoeprs traverse the call graph until they either find the correct location for a change or notice that they got lost and have to start again with a new exploration phase. During the traversal phase, developers often navigate along an outgoing path in the call graph and come back to the previously viewed method or to the anchor point if they decide to discard the path.



Stacksplorer

hci.rwth-aachen.de/stacksplorer