

sdmay18-09: Tool Support for Continuous Model-Based Verification of the Linux Kernel

Week 6 Report

October 21 - October 25

Team Members

Srinivas Dhanwada — *Team Lead*

Collin McIntyre — *Tool Integration Lead, Scribe*

Benjamin Weno — *Automation Lead*

Matthew Wall — *Web Lead*

Summary of Progress this Report

First and foremost, we've decided to switch our reporting periods from Saturdays to Wednesdays. This aligns more closely with our weekly meetings, but it also means that this will be a short reporting period.

We've continued working on debugging our locking instance mapping algorithm and have discovered more edge cases that need to be considered. If the locking mechanism is called inside an if statement, our current implementation will copy the the "if (" and place it on the line before the locking mechanism with our comment. We've also run into issues with patch generation regarding the kernel's use of the "EXPORT_SYMBOL" macro. The macro is causing function redefinition and ambiguous/implicit function call related errors. We are currently investigating options for getting around this macro. We've also continued working on our website concept, and have created more concept images that demonstrate the view we're hoping to use when viewing a single locking mechanism, not all of them at once.

Pending Issues

Accounting for one edge case in our mapping algorithm reveals more edge cases and analyzing the code is revealing more edge cases as well. The EXPORT_SYMBOL macro used in the locking function implementation is causing several errors during compilation.

Plans for Upcoming Reporting Period

Before we can really make more progress on the project, we need to finish debugging what we currently have. Our efforts this week will be focused on cleaning and debugging our current approaches for mapping locking mechanisms and generating patches. We also continue to expand our library of concept sketches for the website.

Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
Srinivas Dhanwada	Srinivas has continued to debug the locking instance mapping algorithm. He discovered a bug where inserting the comment for a locking mechanism inside an if statement would also include part of the if statement itself, and has been working on a method to account for this edge case while keeping the	14	47

