

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

### Week 9 Report

November 8 - November 15

### 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

Unfortunately due to midterm exams and project deadlines for other classes, minimal progress was made this week. We have, however, patched out all known bugs in the locking instance mapping algorithm and have generated a mapping for the entire kernel between versions 3.17, 3.18, and 3.19. We've finished creating the patch for version 4.13.7 of the kernel, and have also begun working on a program to generate the patch automatically based on the contents of the mutex and spinlock header and implementation files. We've also made a little progress with regards to our overall Difference Mapping algorithm, although the algorithm is still a work-in-progress.

### Pending Issues

We need to find a way to perform extensive testing on our solutions. While they seem to work after applying them to several circumstances, we aren't yet confident that we've found and fixed every bug in our implementations. We'll be looking into ways to extensively test our designs.

### Plans for Upcoming Reporting Period

We plan to continue with the development of the automated patching program. We also plan to continue working on the overall Difference Mapping algorithm, and hope to begin working on writing the program to run this algorithm automatically.

### Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
Srinivas Dhanwada	Srinu patched out all of the known bugs in the locking instance mapping algorithm and generated a map for all of the instances in the kernel for versions 3.17, 3.18, and 3.19. He also continued working with Collin and Ben on the overall Difference Mapping algorithm, although the algorithm isn't yet complete.	6	73
Collin McIntyre	Collin finished creating the patch for version 4.13.7 of the kernel. He also worked with Srinu and Ben to continue creating the Difference Mapping algorithm. The algorithm	3	49.5

[illegible]