

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

Weekly Report 5

March 10 – March 23, 2018

Client: Suraj Kothari

Faculty Advisor: Suraj Kothari

Team Members:

Srinivas Dhanwada – Team Lead

Collin McIntyre – Tool Integration Lead

Benjamin Weno – Automation Lead

Matthew Wall – Web Lead

Summary of Progress this Report

Between Spring Break and three of our four members being out of town for most of this past week, there wasn't very much work that was completed. We've created unit tests for the RSS feed monitor, difference linker, and difference mapper, and spent some time working on making our code cleaner and more efficient. The unit tests for the RSS feed monitor are running properly and our code is passing all of our tests. The unit tests for the difference linker and difference mapper currently aren't executing through our GitLab CI testing setup. In the coming reporting period, we need to work on getting these tests to execute properly on our GitLab CI testing setup and work to execute a run of LSAP on version 3.18-rc1 of the kernel. In order to do this, we need to create a patch for that version.

Pending Issues

- Tests for the difference mapper and difference linker currently aren't running.
- Still need to identify a method for finding kernel locking macro definition location.

Plans for Upcoming Reporting Period

In the upcoming reporting period, we plan to create a patch for version 3.18-rc1 of the Linux kernel. We also plan to work on our implementation of our unit tests for the difference mapper and difference linker to get them to run on our GitLab CI testing setup. Lastly, we also plan to continue working with our client to come up with a method for identifying kernel locking macro definition location.

Individual Contributions

Team Member	Contribution	Hours This Period	Total Hours
Srinivas Dhanwada	<ul style="list-style-type: none">• Created unit tests for the RSS feed monitor, difference mapper, and difference linker.• Working with Collin to patch kernel version 3.18-rc1.	20	130
Collin McIntyre	<ul style="list-style-type: none">• Worked to clean up and optimize implementation of the patch generation algorithm.• Working with Srinu to patch kernel version 3.18-rc1.	4	95.5
Benjamin Weno	<ul style="list-style-type: none">• Set up a Linux VM to work on testing automation procedures. This is required since the kernel project contains file names that are invalid in Windows.	4	63
Matthew Wall	<ul style="list-style-type: none">• Worked to clean up code for the backend of the new website.	4	63.5