

Lab 6
Nov 20, 2014
(50 points)

Andriod Kernel Programming

The goal of this lab is to familiarize yourself with kernel level programming in general, and android kernel development in particular.

Please submit all source code and write up of your experience, issues, and results. Include a screen shot of relevant steps to show work. Please cite any webpages, documents, friends which helped you in completing the lab.

For background reading please refer back to the slides we reviewed in class

also:

http://elinux.org/images/f/ff/Porting_Android_4.0_to_a_Custom_Board.pdf

<http://stackoverflow.com/questions/9682306/android-how-to-get-kernel-logs-after-kernel-panic>

<https://sites.google.com/a/mtu.edu/max-jin-home-page/hints/buildandloadakernelmoduleinandroidsystem/build-and-load-a-kernel-module-in-android-system>

Step 1: General information

Follow a tutorial for getting a simple hello world example going on the emulator. Please make sure to debug/test before running it on a physical device

example:

<http://rechtzeit.wordpress.com/2011/03/21/77/>

or

<https://tthtlc.wordpress.com/2011/12/29/how-to-write-a-kernel-module-on-android-sony-ericsson-xperia-arc-s/>

create a run a simple kernel mod which prints hello your name

Step 2: Firewall Example

here is an example of a kernel module to firewall traffic

<http://www.roman10.net/a-linux-firewall-using-netfilter-part-1overview/>

follow the steps and get it working. please note specific kernel and system you worked on and how it ran on the emulator etc.

for background, you might want to look at

<http://en.wikipedia.org/wiki/Iptables>

<http://en.wikipedia.org/wiki/Lsmod>

http://en.wikipedia.org/wiki/Loadable_kernel_module

<http://www.strazzere.com/blog/2014/07/compiling-an-emulator-kernel-for-loadable-modules/>

fun read:

https://events.linuxfoundation.org/images/stories/slides/abs2013_zores_jellybean.pdf

<https://cansecwest.com/slides/2013/An%20Android%20Hacker%27s%20Journey-%20Challenges%20in%20Android%20Security%20Research.pptx>