Project 0 Report

Locating Files

To locate the file needed to change to print my message during boot, I followed the hints offered in the project file. I located the file using the command “grep -r rcu\_end\_inkernel\_boot”, which executes filter search for all instances of a defined pattern in all files within the directory and all subdirectories. After executing the command, I obtained five different files that I needed to filter through. One file was located in documentation and three of the files contained function declarations, so I was able to disregard all four of these files. The only file that made sense was “init/main.c” since it had a function call and was a part of the boot process.

To locate the file that contained the grub menu, I followed the boot process located in “/boot/init.sh”, where two directories were mounted. The first was sda1, which is a disk partition so I disregarded it, but the second was the sysroot. I moved to that directory and noticed it contained the grub directory. I moved into the grub directory and noticed a file named “menu.lst”. I read the file and saw the grub menu listings.

File Changes

To add my message to the boot sequence, I implemented the linux logging system. I opened main.c with nano, searched for rcu\_end\_inkernel\_boot using “Control W“, and added printk(KERN\_ERR “My Message\*”); to the line above rcu\_end\_inkernel\_boot call. To change the grub menu, I used “sudo nano menu.lst” and added my name next to the default boot sequence. After making the file changes I would save the files using “Control X”.

Testing

To test both file changes, I would first run the full make command after making the file changes and reboot the VM to verify my changes were correct. In the case of the grub menu once I knew I had correctly made the change, I loaded a clean snapshot, made the file change, ran the full make command, and created a new snapshot. In the case of the boot message once I knew I had correctly made the change, I created a patch file using git commands and transferred the patch file to my local machine using sftp. I then reloaded a clean snapshot, transferred the patch file back to the VM, applied the patch, and then ran the full make command. Once I rebooted the VM and saw my changes were good I knew the patch file was correct.

Links

[1] Screencast: <https://youtu.be/NA--RrAGxQA>