

ELEC 377 Lab 1: Testing Plan

Section 003, Group 16 – Thursday Lab

Erhowvosere Otubu, 20293052

Ivan Samardzic, 20296563

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Testing

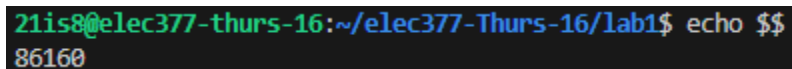
The following sections describe three test cases the group used to confirm that the program created works correctly. Testing was conducted in accordance with the Lab 1 outline and is split up into three separate testing methods.

Case 1 - lab1.out1

The first of the test cases was conducted by running the `cat /proc/lab1 > lab1.out1` command through the first NetID user, 21is8. The contents of this output were printed to an external file, “lab1.out1”, and checked for accuracy.

Primarily, the verification for the name of the process, and the state of the process was trivial. Since the “cat” command was called, the name of the process also printed “cat”, and the state of the command was always “running”.

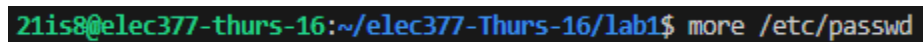
Next, the parent of the process ID (PPID) was verified by running the following command, as shown in Figure 1 below. Visibly, the value of 86160 matched up with the PPID output in the external file. This makes sense since the parent of the process is just the shell.



```
21is8@elec377-thurs-16:~/elec377-Thurs-16/lab1$ echo $$
86160
```

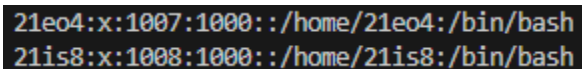
Figure 1: Verification of the PPID using the “echo \$\$” command.

Finally, the user IDs of the process were verified by running the command, as shown in Figure 2. The subsequent output in Figure 3 confirmed the correct UIDs and GIDs. For the 21is8 user, the first the number of 1008 indicates the UIDs, while the second the number of 1000 displays the GIDs. This aligns perfectly with the outputs in the “lab1.out1” file.



```
21is8@elec377-thurs-16:~/elec377-Thurs-16/lab1$ more /etc/passwd
```

Figure 2: Using the “more /etc/passwd” command.



```
21eo4:x:1007:1000:~/home/21eo4:/bin/bash
21is8:x:1008:1000:~/home/21is8:/bin/bash
```

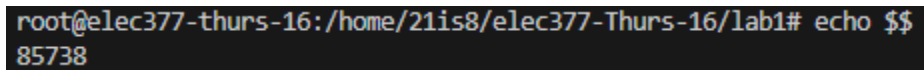
Figure 3: Verification of the outputted UIDs and GIDs using the “more /etc/passwd” command as shown above.

Upon completion of testing for case 1, it is concluded that all process PCB information is accurate, and agrees with the output file, “lab1.out1”.

Case 2 - lab1.out2

The second test case was conducted by running the `cat /proc/lab1 > lab1.out1` command as the root user this time. The contents of this output were printed to an external file, "lab1.out2", and checked for accuracy in the same manner as the first test case.

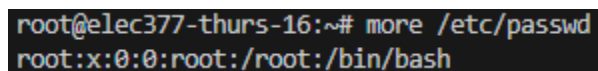
Verifying the name and state of the process was trivial, and followed the same method as in Case 1 - lab1.out1. The PPID was also verified by running the "echo \$\$" command, as the root user this time. This is shown in Figure 4, below. The output of 85738 matched up with the PPID output in the external file.



```
root@elec377-thurs-16:/home/21is8/elec377-Thurs-16/lab1# echo $$
85738
```

Figure 4: Verification of the PPID as the root using the "echo \$\$" command.

Following the same testing plan as in case 1, the final verification was completed to test the accuracy of the UIDs and GIDs. This test was completed by running the same "more /etc/passwd" as the first case. As shown in Figure 5, the root has both a UID of zero, and a GID of zero. This agrees with the UID and GID values outputted to the "lab1.out2" file.



```
root@elec377-thurs-16:~# more /etc/passwd
root:x:0:0:root:/root:/bin/bash
```

Figure 5: Verification of the outputted UIDs and GIDs using the "more /etc/passwd" command as the root user.

Once again, all tests for the root user have proven to be accurate, and we can now proceed with the final test case.

Case 3 - lab1.out3

Finally, the last test case was conducted by running the `cat /proc/lab1 > lab1.out1` command through the second NetID user, 21eo4. The entire testing procedure was identical to Case 1 - lab1.out1, however, the PPID, and UID values were expected to be different due to the different user.

Running the "echo \$\$" command for this second user on a different computer displayed a PPID of 96179, which matched up with the PPID value in the external file output.

Similarly, Figure 3 displays a user ID of 1007 for 21eo4, rather than the same UID of 1008 for the 21is8 NetID. This also agrees with the output file UIDs when run from the second user.

In summary, all testing cases were accounted for, and produced identical process values to that of the three separate output files.