CSE 523S
Systems Security

Presentations
& Semester Endgame

Spring 2022

Prof. Patrick Crowley

Plan for Today

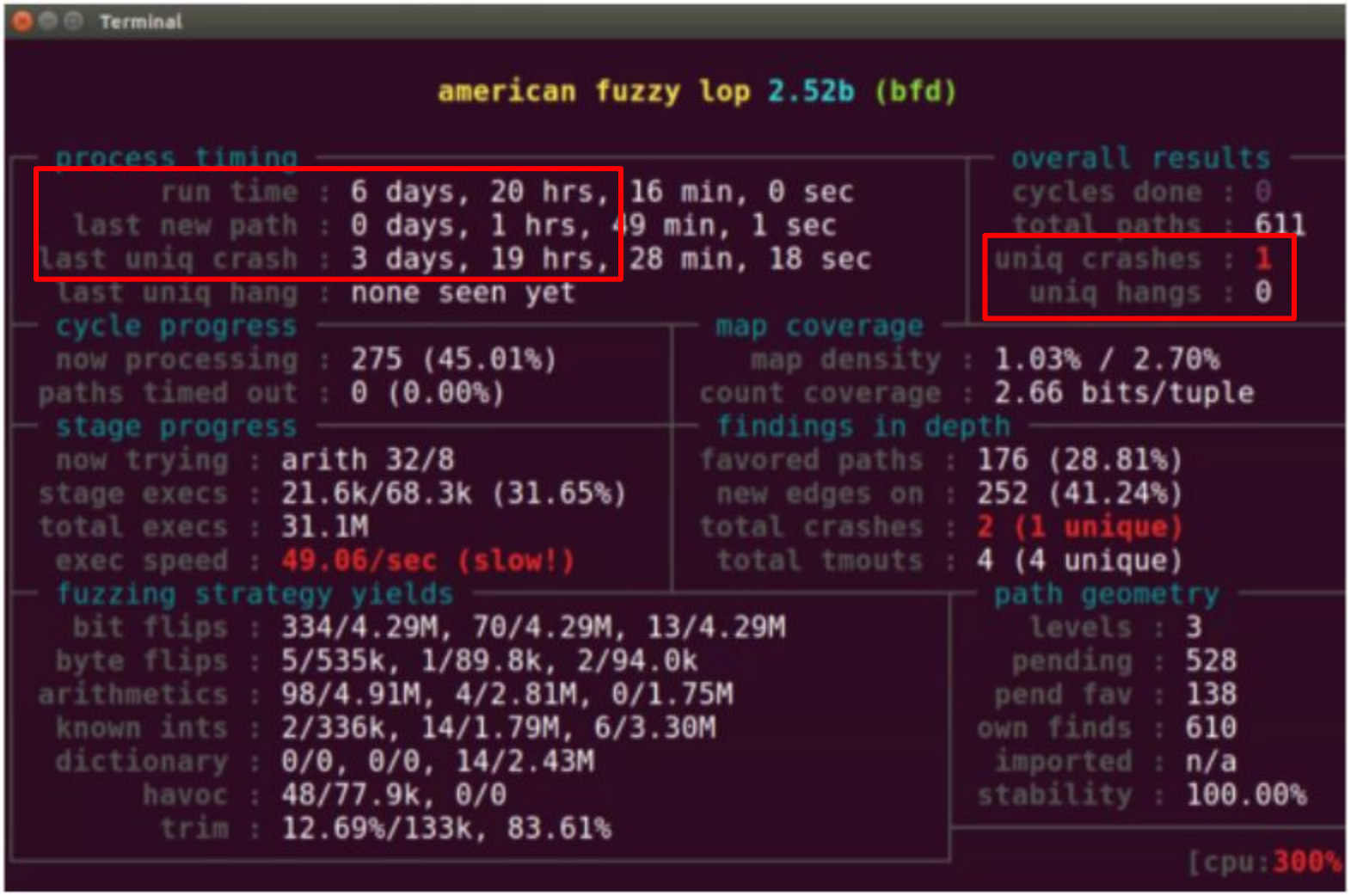
- Fuzzing lab follow-up
- End of semester plans
- Presentation requirements & topics

Fuzzing Lab Follow-up

```
[03/29/22]seed@VM:Patrick$ ./so_gcc <
/tmp/findings/crashes/id\:000001\,sig\:11\,src\:000000\,op\:havoc\,rep\:12
8
[BEFORE] buffer_two is at 0xbfa3ed1c and contains 'two'
[BEFORE] buffer_one is at 0xbfa3ed24 and contains 'one'
[BEFORE] value is at 0xbfa3ed2c and is 5 (0x00000005)

[STRCPY] copying 2 bytes into buffer_two

[AFTER] buffer_two is at 0xbfa3ed1c and contains ' ��'
[AFTER] buffer_one is at 0xbfa3ed24 and contains ' ��'
[AFTER] value is at 0xbfa3ed2c and is -12582912 (0xff400000)
Segmentation fault
[03/29/22]seed@VM:Patrick$
```

Note that the input file has >100 bytes

```c
#include <stdio.h>
#include <string.h>

int main(int argc, char *argv[]) {

  int value = 5;
  char buffer_one[8], buffer_two[8];
  char s[64];

  strcpy(buffer_one, "one");
  strcpy(buffer_two, "two");

  printf("[BEFORE] buffer_two is at %p and contains \'%s\'\n", buffer_two, buffer_two);
  printf("[BEFORE] buffer_one is at %p and contains \'%s\'\n", buffer_one, buffer_one);
  printf("[BEFORE] value is at %p and is %d (0x%08x)\n\n", &value, value, value);

  gets(s);
  printf("[STRCPY] copying %d bytes into buffer_two\n\n", strlen(s));
  strcpy(buffer_two, s);

  printf("[AFTER] buffer_two is at %p and contains \'%s\'\n", buffer_two, buffer_two);
  printf("[AFTER] buffer_one is at %p and contains \'%s\'\n", buffer_one, buffer_one);
  printf("[AFTER] value is at %p and is %d (0x%08x)\n", &value, value, value);

}
```



Planned fuzzing HW: Our SEED VM takes 3 days to find the crash I expected!

Plan for Today

- Fuzzing lab follow-up
- End of semester plans
- Presentation requirements & topics

The next two weeks

- Week 14
  - Format String Vulnerabilities
    - Apr 18 pre-recorded lecture (virtual class)
    - Apr 20 lab
- Week 15
  - Student presentations; wrap up
    - Apr 25 Course wrap-up discussion
    - Apr 27 Student presentations & discussions due

There will be no more homework assignments this semester

Plan for Today

- Fuzzing lab follow-up
- End of semester plans
- Presentation requirements & topics

Original

Presentations

- This is a 500 level class!
  - Find a topic, an incident or recent security news and present it to the class. (~15 minutes).
  - We will provide a list of topics to choose from.
  - Aim to make it a discussion and ask open-ended questions
  - 6 students will present in each lecture reserved for student presentations.
    - presentations will be pre-recorded and posted on discussion boards.

Updated

Presentations & Discussions

- **Presentations**
  - **Due 10am Apr 27th – NO LATE WORK ACCEPTED! (See below)**
  - Presentations will be recorded and posted in canvas discussion
  - Find a topic and present it to the class. (no more than 10-15 minutes).
    - Apr 13 lecture includes a list of topic categories to choose from.
    - You must show your face in the video presentation
  - Content your presentation must include
    - Clearly describe the details/findings/contributions of your topic
    - Explain why/what you find interesting or important about it
    - Pose 2 or more questions about it for follow up discussion
- **Discussions**
  - **Due 11:30am Apr 27th – FIRM DEADLINE!**
  - Each student must complete 2 follow-up peer reviews, answering a question from two different presentations.
    - You will automatically be assigned 2 discussions for peer review
    - Use the rubric to review and answer 2 questions
  - A presentation can have at most 2 follow-ups. (Do not submit a third!)

Topic Categories

- Academic papers
  - USENIX Security Symposium (link)
  - IEEE Symposium on Security and Privacy (link)
- Security conference presentations
  - DEF CON (link)
  - Blackhat (link)
- Vulnerability topic (e.g., from textbook not covered in class)
  - Race condition vulnerabilities
  - SQL injection
- A hacking incident or breach
  - SolarWinds hack
  - Stuxnet
  - OKTA hack

You are not limited to these sample categories! You can choose any security topic of interest to you.

Any questions?