Reverse Test Plan

170D WOBC: Module K Exam II-A

CW2 Kyle Spicer

Due Date: 21 October 2022

1 Purpose

The purpose of creating an in-depth test plan is to place our program under different stressors to identify bugs or gain confidence that our platforms work appropriately. This test plan will consist of unit testing and verifying that functions / logic are well thought out and produce proper results.

2 Unit Tests

2.1 test_invalid_file_type

FUNCTION TESTED: bool verify_magic_number(file_header_t * file_hdr)
TEST PURPOSE: verify invalid magic number exits program successfully.
TEST CONDUCTED: ck_assert(FALSE): Altered the proper file_type_id by one integer to verify that faulty input would return a false boolean value from the function and exit the program.

2.2 test_valid_file_type

FUNCTION TESTED: bool verify_magic_number(file_header_t * file_hdr)
TEST PURPOSE: verify .pcap magic number continues the program properly.
TEST CONDUCTED: ck_assert(TRUE): Passed the appropriate magic number through the function, returning a 0, meaning a True boolean value was returned.

2.3 test_invalid_payload_type

FUNCTION TESTED: int decrypt_payload_type(int payload_type)
TEST PURPOSE: verify function handles improper payload type properly.
TEST CONDUCTED: ck_assert(FALSE): valid payload types are either a 16 or 17. This test assigned a mock payload type with a payload value of 5. The test will be successfully if the function returns -1.

2.4 test_valid_payload_type

FUNCTION TESTED: int decrypt_payload_type(int payload_type)
TEST PURPOSE: verify function handles proper payload type properly.
TEST CONDUCTED: ck_assert(TRUE): valid payload types are either a 16 or 17. This test assigned a mock payload type of 16. The test will be successful if the function returns a 0.

3 Other Testing Completed

Invalid or NULL .pcap - created a blank .pcap file and ran through program. Program was not able to read the contents of the file and exited program accordingly without error.

Invalid Key Entered by User - passed various length and character arguments as the hex key. The program caught the improper value and exited the program appropraitely without error.

Verified Tests with Valgrind - utilized Valgrind with each incorrect value to verify no leaks or errors were populated.

Passed files other than .pcap - entered .txt, csv, and .pdf tp verify the program exited properly without segmentation faults.