
CS 550: Advanced Operating Systems

Work realized by

**Florentin Bekier**
**Rémi Blaise**

---

# Programming Assignment 4: Verification Document

---

**Taught by**
Dr. Zhiling Lan

*Master of Computer Science, Spring 2020*

# Contents

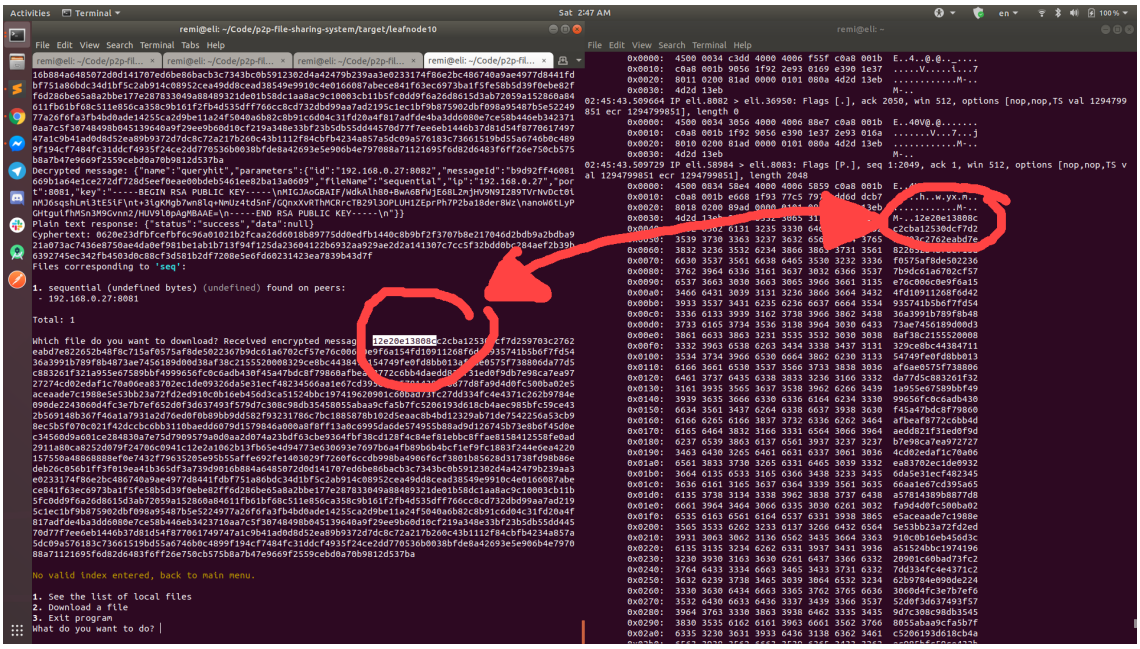

Figure 1: Compare claimed encrypted messages to actual packets

## Prerequisite

Make sure to have tcpdump installed to observe the traffic during the tests. Start tcpdump by running `sudo tcpdump -i lo -X`. The `-X` option makes it print the raw content for transactions in both HEX and ASCII formats.

## Test case 1 See the list of local files

For this test case, you will need to set up **one peer** and **one super-peer**. Please refer to the manual.

1. Make sure that the `share` folder contains at least one file.
2. Start the peer.
3. Type `1` to see the list of local files.
4. Verify that the list of files corresponds to the files present in the `share` and `downloads` folders.
5. Verify that the observed content of the messages are the encrypted messages as claimed by the software (cf figure 1).

## Test case 2 Update a file

For this test case, you will need to set up **one peer** and **one super-peer** with **strategy 0**. Please refer to the manual.

1. Start the peer and super-peer.
2. Type `1` to see the list of local files.
3. Verify that the list of files corresponds to the files present in the `share` folder.
4. Update a file in the `share` folder.
5. Verify that an invalidate request corresponding to this change was made by looking in the super-peer logs.
6. Verify that the observed content of the messages are the encrypted messages as claimed by the software (cf figure 1).

## Test case 3 Download a file from a peer

For this test case, you will need to set up **one or multiple super-peers** with **one or more leaf-nodes**. Please refer to the manual.

1. Make sure that the `share` folder of the peers contain different files.
2. Start the super-peers.
3. Start the peers.
4. On one peer, type `2` to download a file.
5. Type the name of a file only present on another peer.
6. Verify that the super-peer returns the right peer information for this file.
7. Type `1` to download this file.
8. Verify that the download was successful and that the downloaded file is now present in the `downloads` folder.
9. Verify that the observed content of the messages are the encrypted messages as claimed by the software (cf figure 1).

## Test case 4 Search for a non-existent file

For this test case, you will need to set up **multiple peers** and **one super-peer**. Please refer to the manual.

1. Make sure that the `share` folder of the peers contain different files.

2. Start the super-peer.
3. Start all the peers.
4. On one of the peers, type `2` to download a file.
5. Type the name of a file that doesn't exist on any peer.
6. Verify that the super-peer doesn't return any peer information for this file.
7. Verify that the observed content of the messages are the encrypted messages as claimed by the software (cf figure 1).