Linnéuniversitetet
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Report

Assignment 3
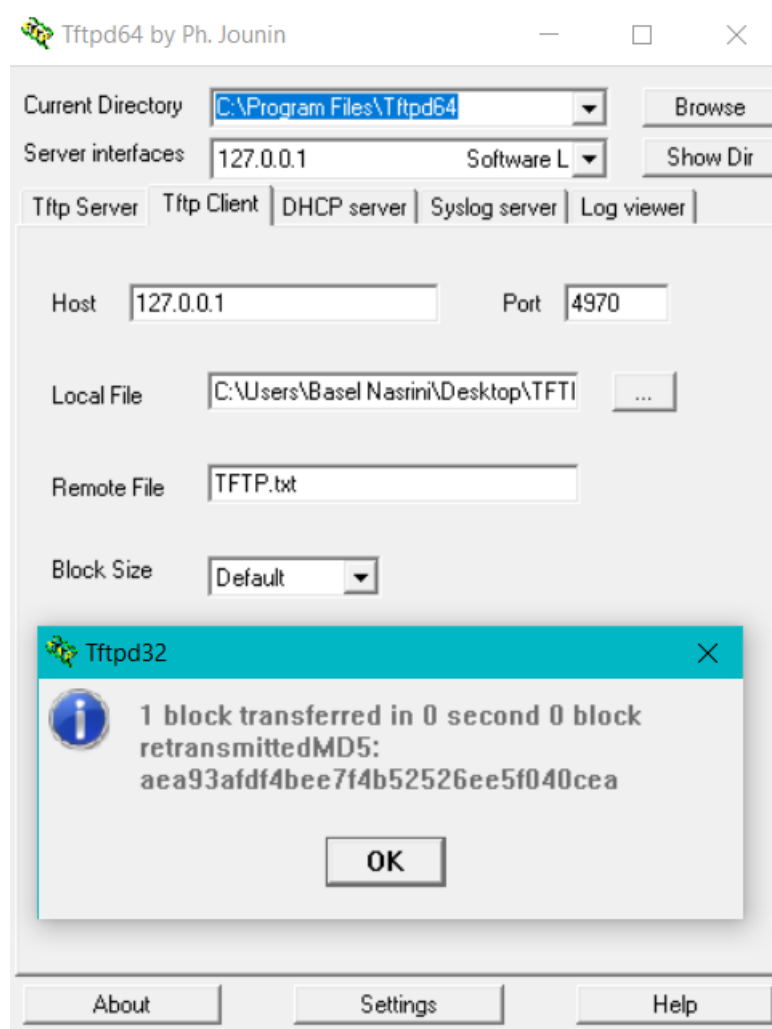TFTP Server

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# Problem 1

Read request for file shorter 512 bytes

The above picture is screenshot for reading a file that is shorter than 512 bytes.
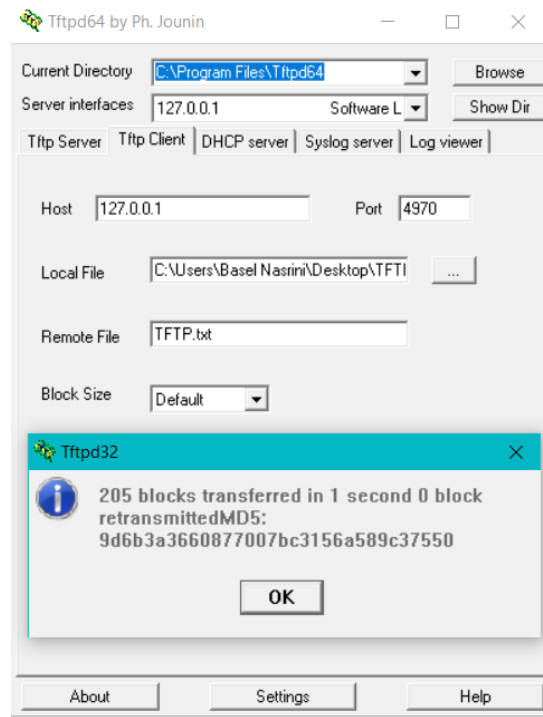
Why Socket and sendSocket?

We are using two kinds of socket. "Socket" is for reading a connection from the client and "sendSocket" for handling the reading/writing requests sent form the client which is tftpd64.

Problem 2

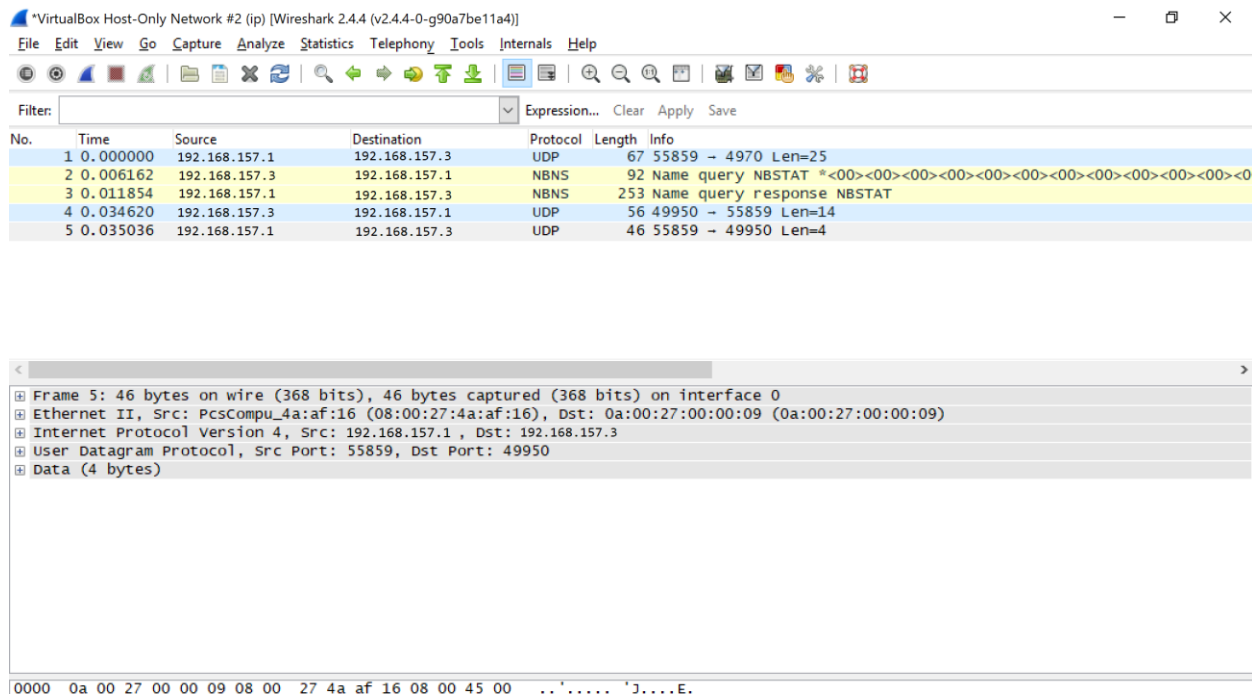Now we can read a file larger than 512 bytes
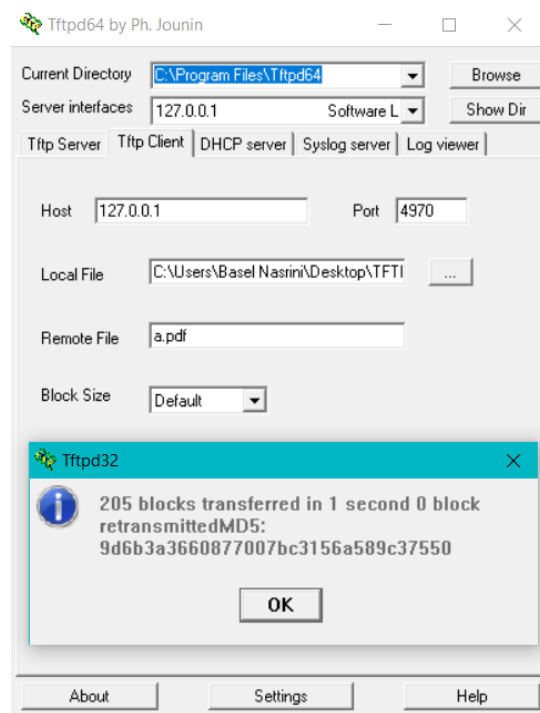
The above picture is screenshot for reading a file that is larger than 512 bytes.

The above picture is screenshot for writing request for a file that is larger than 512 bytes.

VG task 1:

Wireshark analysis for read request to a file that is 10 bytes

The above picture is a screenshot shows a RRQ from the client that its IP is (192.168.157.1) to the server that its IP is (192.168.157.3)

Description of the steps:

1- It is a packet of that its type is UDP packet. It has information about the file name, mode and data size.
2- NBNS protocol that is used to convert human-read names to IP address.
3- NBNS protocol
4- UDP packet has been sent to the client and its size is 14 bytes. (10 bytes data + 2 bytes opcode + 2 bytes block number.
5- UDP packet that is an ACK packet has been sent to the server and its size is 4 bytes. (2 bytes opcode + 2 bytes block number.

Difference between RRQ and WRQ

Read Request	Write Request
Opcode is 1	Opcode is 2
After accepting the request, the server creates and sends a DATA PACKT to the client	After accepting the request, the server sends a ACK PACKET to the client that has the same block number
After sending a packet, Server waits to an ACK from the client. The client will receive the data and send an ACK to the server	After receiving a packet from the client, Server sends an ACK to the client The client sends data to the server and wait for an ACK.

Wireshark analysis for write request to a file that is 10 bytes

Problem 3

Error code 0: Not defined

This error occurs when the server gets a request that is not octet (For testing this error, I changed the server code temporally to let the server return this error when the request is octet)
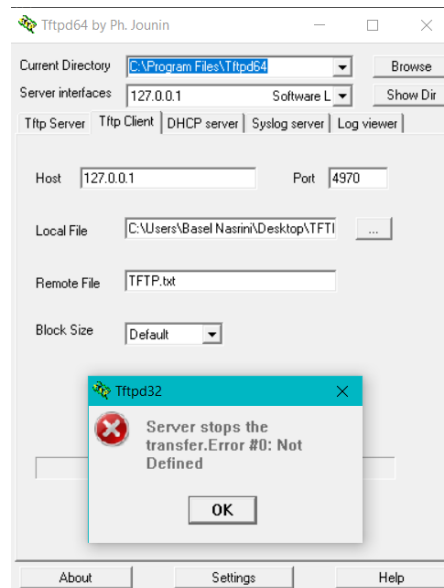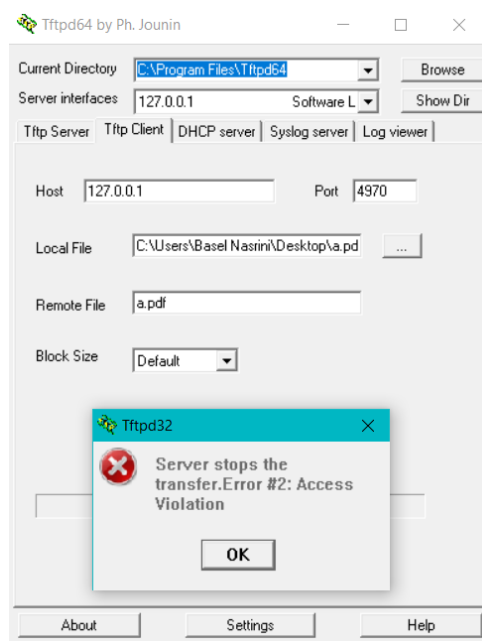

Error code 1: File not found

This error occurs when the server gets a read request for a file that is not exist.
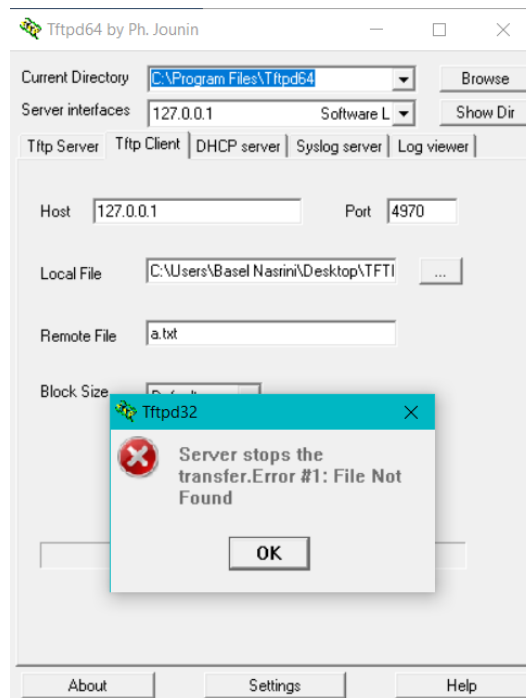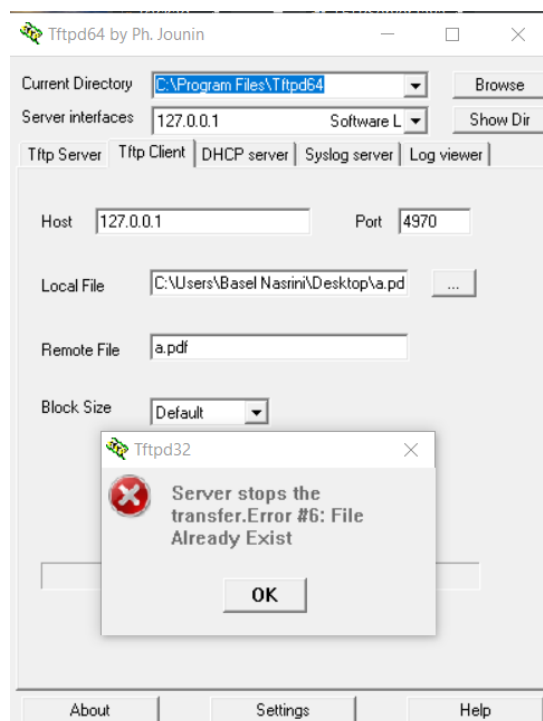
Error code 2: Access Violation

This error occurs when the server faces an IOException. (To test this error, I prevent the server from access to the write folder. And then I sent write request to the server.)
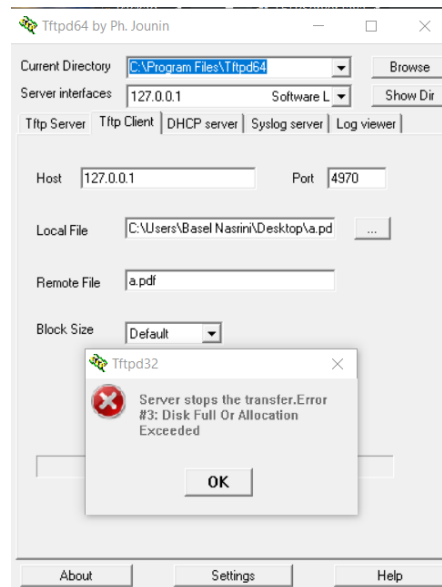

Error code 6: File already exist

This error occurs when I tried to write a file that is already exist on the server.

VG-task 2:

Error code 3: Disk full or Allocation Exceeded

This error occurs when there is not enough space on the disk (To test this error, A gave the server a permission for 50 KB of the hard disk, then and sent a write request with a file that is larger than 50KB)

Error code 4: Illegal TFTP Operation

This error occurs when the server receives a request other than write or read
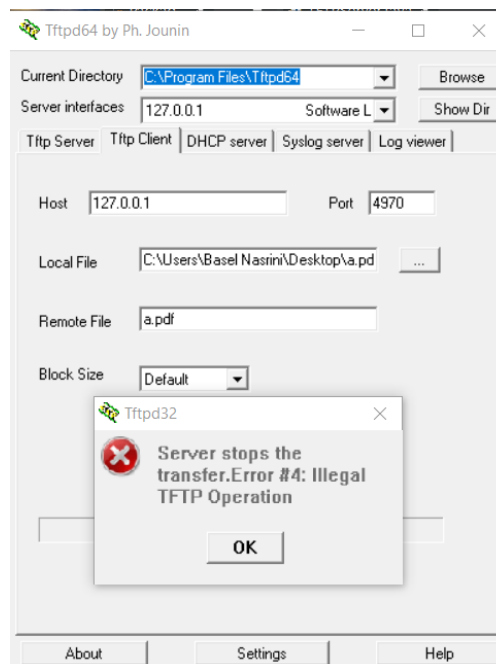
Error code 5: Unknown Transfer ID

This error occurs when the server receives a packet that is not from the expected client. (To test this error, I changed the received port number for one of the ACK packet from the client)