

Lab 8 – Computer Networks

Socket Programming

Objectives

- A simple protocol implementation
- Verification through other tools (tcpdump, wireshark)
- Practicing UDP

Description

You are provided with a very simple file transfer protocol. You are required to implement this protocol using any language of your choice.

This protocol has two entities, Server and Client. Both – the Server and the Client – are implemented using UDP.

Server is a multithreaded server which hosts number of files in a directory. A client can get the list of all the hosted files and download any of these files. If client requests to download a non-existent files, client gets a message that file is not available. When client requests a valid file, the server first responds with metadata about the file and then sends the actual file in packets containing at most 100 bytes of a file. Exact message formats are given below:

Comments	Packet Format		
Client's request to get the list of file	0x0000		
Client's request to download a file	0x0001	File Name	
Server's response to get list request	0x0010	# of Files (2 Bytes)	Individual File Names
Server's First response to download a file request	0x0011	File Name	File Size (4 Bytes)
Server's other responses to download a file request	0x0012	Offset (2 Bytes)	Data (Upto 100 Bytes)

You should test your implementation such that server is on one machine and client on some other machine. Following tests should be conducted;

- Client is able to get the list, and download a required file
- Packets related to this communication should be captured and analyzed for (dis) similarity between given packet format and actual captured packets

Submission and Evaluation

- This is a group assignment with maximum 02 students in a group
- You must show the working to instructor and also submit code on LMS.