CS 3210 – Computer Networks Lab
Jan – Apr 2014
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Programming Assignment 3 – UDP Based File Server
Due Date : March 17, 2014, 9 AM, on Moodle

Assigned on March 10,2014

1. Description

The purpose of this assignment is to implement the sliding window protocol and to make the UDP protocol more reliable. For this assignment, you need to extend the previous assignment in the following ways :

(a) The files to be got from the "get" command can now be generic. Any type of file (< 600 MB) must be transferable. (The size limit has been set to keep the sequence number within bounds . You might want to think of what you would do to keep the sequence number as low as possible and still transmit files of unbounded size)
(b) Save the output to a file in the correct order. This is necessary since we might ask you to transfer and play a mp3 file.
(c) Implement sliding window protocol for a reliable communication.
(d) In case a response is not received for a certain interval of time, the client should assume that the server is down and shut the connection.

Essentially in this assignment, you try and make the entire system reliable. In case the packets are lost, you need to be able to restore them using the Sliding Window protocol. For this, acks are necessary every time a packet is received by the client.

2. Constants and Assumptions

For the given assignment the following values have been set :

(a) Max size of packet can be 16K bytes. (The packet size could be lesser than that)
(b) The size of sequence number is 4 bytes (Max value : $2^{32}-1$)
(c) The timeout for which the client waits before assuming that the server is down is 1 sec.
(d) Assume that both the client and server will be given the same size of the sliding window, which will be a **command line argument** (values would be 2,4,8 or 16) . (What do you think would be the ideal size of the sliding window of the server with respect to the client ?)

3. What to Submit

The source code along with the make file in the same format as the previous assignment. Make sure that the executables are named "client" and "server" respectively.

We will be providing 3 files on which you will have to run your code. They will be a text file , a pdf and a mp3 file which has to be transferred over the network and then played on the client side.

Note : This is an INDIVIDUAL assignment. If you have any difficulty, please post it on the forum.