A Network Measurement Tool for Handheld Devices
Server and Client Users' Manuals[1]

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1. Server Users' Manual

This section describes how to use the server application that was developed in this research.

The server interface is displayed in Figure 1. The "Configure" button brings up the "Configuration" dialog box as shown in Figure 2. The "Port Number" parameter is the transport layer port used for connections between client and server. The server and client should be configured to use the same port number. Click "OK" when finished or "Cancel" to quit the configuration. The program will use the new port number if "OK" is clicked. To start listening for new connections from clients, click the "Start" button in the main window. Click "Exit" button to exit the program.

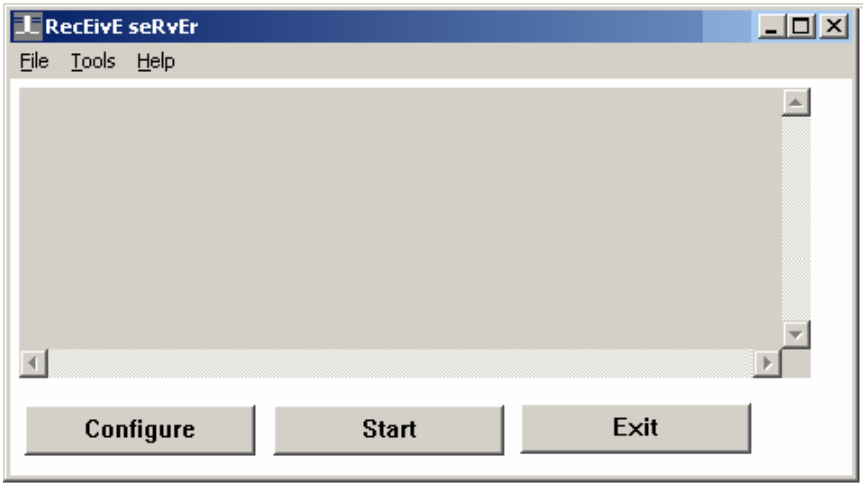

Figure 1. Server interface.

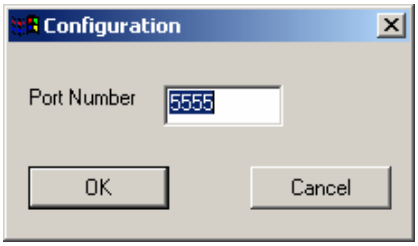

Figure 2. Server "Configuration" dialog box.

Note that the default port number for data transfer is 5555 and that the control connection uses port number 5556. Thus, any valid port number except 5556 can be used.

Under the "File" menu, the "Save to log file" option prompts user for a filename and will save all the connection status information to the specific file. By default, the filename will be "data.txt". The "Exit" option exits the program.

[1] From SiewYeen Agnes Tan, "A Network Measurement Tool for Handheld Devices," M.S. Thesis, Virginia Polytechnic Institute and State University, May 16, 2003. The full thesis available at the following URL: http://scholar.lib.vt.edu/theses/available/etd-05192003-213320.

Under the "Tool" menu, there are "Configure" and "Start" submenus, where "Configure" is used for configuration and "Start" allows the servers to start setting up and receiving connections.

The "Help" menu has the "About" option that displays the host name and the IP address of the server itself. Figure 3 shows the "About" dialog box.

Figure 3. "About" dialog box.

After choosing the "Start" command, the server waits for further connections from clients. When a connection is established, the server starts receiving data from client. Figure 4 shows a sample screen shot of the server when receiving data from a client and Figure 5 shows the associated data saved in "data.txt" file.

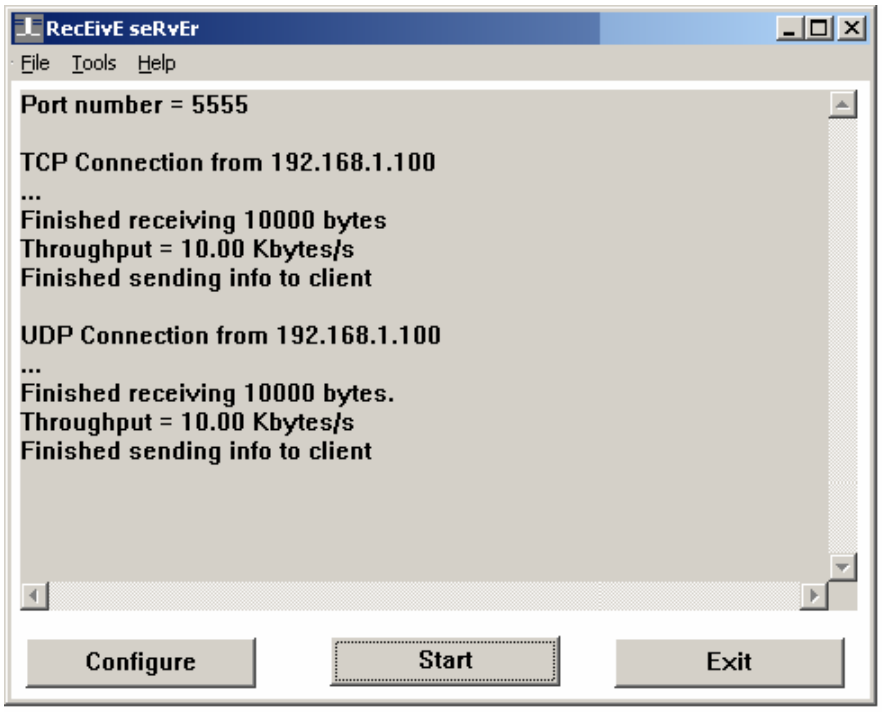

Figure 4. Server receives data from client (PDA).

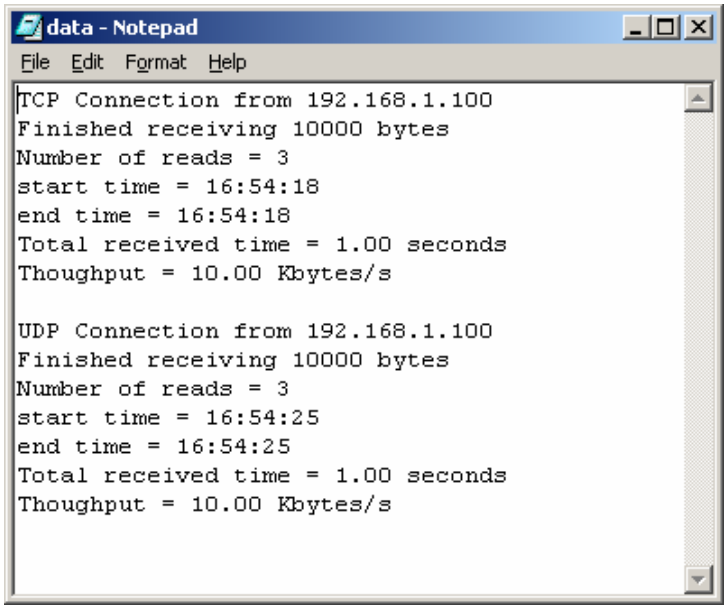

Figure 5. Server connection information in "data.txt" file.

2. Client Users' Manual

The main client interface is shown in Figure 6 and the "Configuration" dialog box is shown in Figure 7. The client has more parameters to be configured than the server. The "Host" entry can be entered as host name or IP address of the server. There are three variations of transport protocols that can be chosen. "TCP" specifies a standard TCP connection, "TCP_NoDelay" specifies TCP connection with the NODELAY option [reference #], and "UDP" specifies use of standard UDP as the transport layer. "Total bytes to send" denotes how much data, in bytes, the user would like to send to the server. "Block size" specifies the size of each data block to be sent, in bytes. The "Port Number" value needs to be the same as the server's port number. The connection can be protected as the Secure Socket Layer (SSL) connection by selecting the "SSL" option.

Figure 8 displays the status of the sample test as seen on the PDA screen. Figure 9 displays the associated information that is saved in the "data.txt" file.

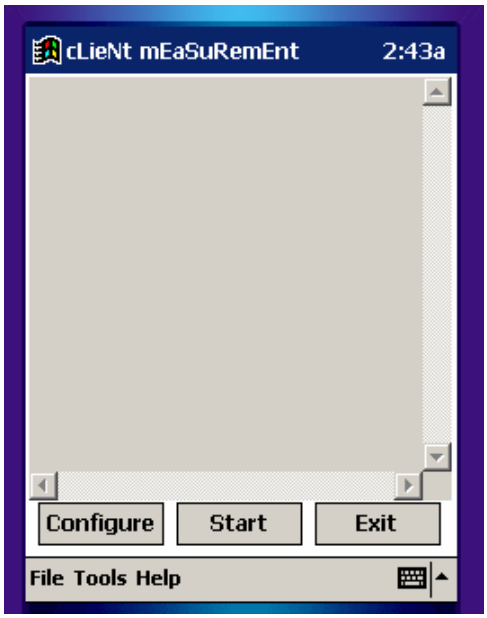

Figure 6. Client interface.

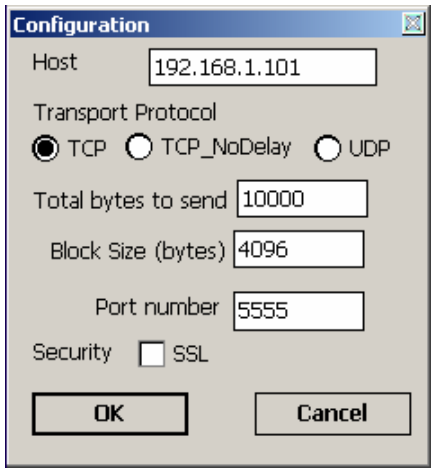

Figure 7. Client "Configuration" dialog box

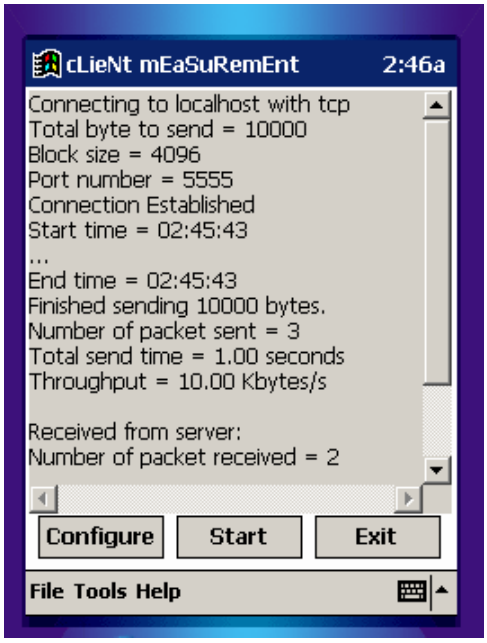

Figure 8. Displaying TCP connection information.

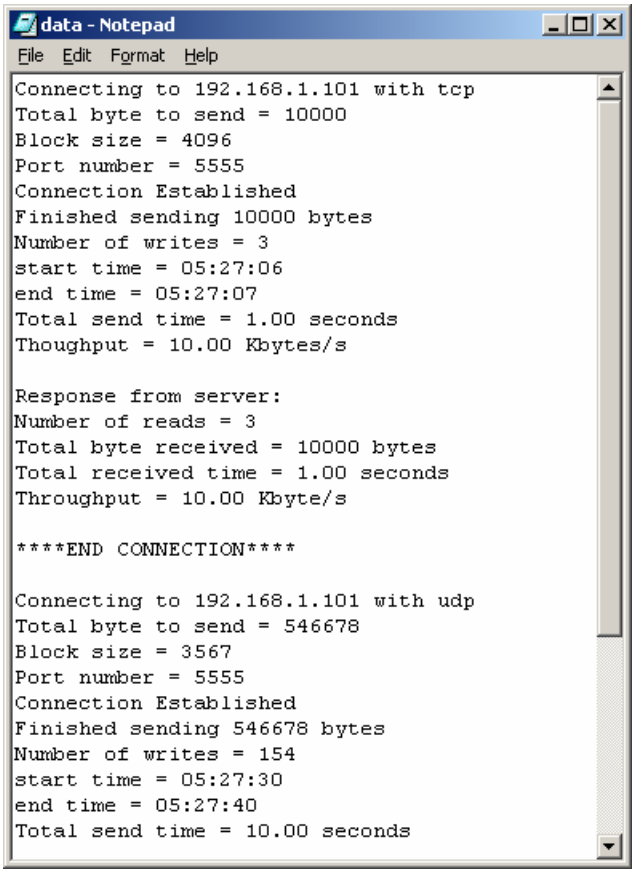

Figure 9. Client connection information in "data.txt" file.