

udp_tester

User Guide

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Purpose

udp_tester is a simple Unix tool for testing network packet loss while varying packet size, number of packets, packet frequency, and number of clients. It includes a Python statistics tool for analyzing the results of the network test

Usage

Obtaining

```
git clone https://github.com/ajqia/udp\_tester.git
```

Building

```
cd udp_tester
mkdir cmake-build-debug

cmake -DCMAKE_C_COMPILER="gcc" -DCMAKE_CXX_COMPILER="g++" -S .
-B cmake-build-debug

cmake --build cmake-build-debug
```

Running

```
./cmake-build-debug/src/server
./cmake-build-debug/src/client --i 127.0.0.1
```

Analyzing with Python

Prerequisites

```
{package manager} install pip
pip install pandas
pip install numpy
```

Other Requirements

Must have generated a log.csv file by following previous steps

Analysis

```
python stats.py
```

Features

Client Options

Flag	Description	Example format	Required	Default Value
--i	Server IP	192.168.0.10	Yes	None
--t	Time to start	19:23	No	null
--n	Number of packets	100	No	100
--p	Port	9000	No	4981
--s	Size of packet in bytes	100	No	100
--d	delay between packets in ms	50	No	50

Server Options

Flag	Description	Example format	Required	Default Value
--i	Server IP	192.168.0.10	No	127.0.0.1
--p	Port	9000	No	4981

Examples

Running

```
alex@Alexanders-MacBook-Pro:~/work/assignments/udp_tester ㄟ%1
(base) → udp_tester git:(main) x ./cmake-build-debug/src/client --i 127.0.0.1
1,100
2,100
3,100
4,100
5,100
6,100

./cmake-build-debug/src/server ㄟ%2
(base) → udp_tester git:(main) x ./cmake-build-debug/src/server
accepting
accepting
1,100,1.0.0.0,5889
2,100,1.0.0.0,5889
3,100,1.0.0.0,5889
4,100,1.0.0.0,5889
```

Python

```
alex@Alexanders-MacBook-Pro:~/work/assignments/udp_tester ㄟ%1
(base) → udp_tester git:(main) x python stats.py
client: (5889, '1.0.0.0')
  packet_id  max_packets      ip  port
0         1         100  1.0.0.0  5889
1         2         100  1.0.0.0  5889
2         3         100  1.0.0.0  5889
3         4         100  1.0.0.0  5889
4         5         100  1.0.0.0  5889
..         ..         ...      ...
95        96         100  1.0.0.0  5889
96        97         100  1.0.0.0  5889
97        98         100  1.0.0.0  5889
98        99         100  1.0.0.0  5889
99       100         100  1.0.0.0  5889

[100 rows x 4 columns]

num packets received: 100
num packets intended: 100
packets lost: 0
min # packets lost in sequence: 0
max # packets lost in sequence: 0
out of order packet ids: []
min # packets out of order in sequence: 0
max # packets out of order in sequence: 0

-----AGGREGATE STATISTICS-----
average lost: 0.0
max lost: 0
min lost: 0
average out of order: 0.0
max out of order: 0
min out of order: 0
(base) → udp_tester git:(main) x
```