National College of Ireland

Configuration Manual

MSc Internship

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MSc Project Submission Sheet

School of Computing

Student Name: Neha Patil……

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Programme: Cyber Security…… **Year:** 2020……..

Module: MSc Internship……..……

Lecturer: Mr. Vikas Sahni……..……

Submission Due Date: 17/8/2020……..……

Project Title: Detecting and preventing Man in The Middle attack using Interlocking protocol and HMAC caused by perpetrator

Word Count: 369…… **Page Count:** 6……..……..……

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Configuration Manual

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1. Summary

The proposed paper describes the procedure to mitigate man in the middle attack using interlocking protocol and HMAC . Various Python scripts are developed for implementing server-client communication, man in the middle and cryptographic model for HMAC. For demonstrating TCP ip communication, Wireshark has been used to capture the traffic. For development of the python script PyCharm software has been used.

2. Tools

The implementation required three major components viz. Wireshark and Python[4], on a base windows machine.

1. **PyCharm**: for developing the python scripts which includes server.py, client.py, Middle_man.py, RSA.py and crypto.py PyCharm2019.2.2 community edition has been used.

2. **Wireshark**: For capturing the network traffic and viewing the communication Wireshark Version 3.2.5 (v3.2.5-0-ged20ddea8138) network analyzer tool has been used.

3. python: Used for developing scripts for server, client, man in the middle and cryptographic model.

3. Download and Installation

1. For Python Installation:

Python 3.8.4 has been installed from the official website.
Following commands has been used to installed required libraries on Python

>>python -m pip install -U pip
>>python -m pip install -U numpy
>>python -m pip install -U sympy

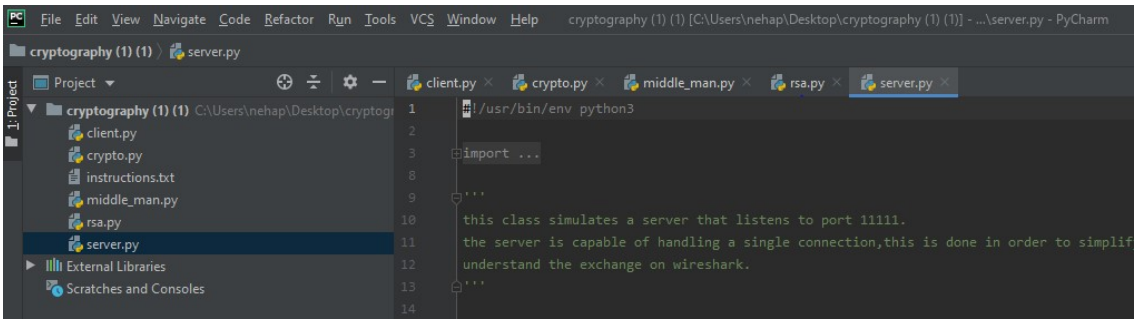
2. For Wireshark Installation:

Download the latest version of Wireshark software from Wireshark's org for analyzing network traffic.

4. Configuration and Execution

1. Python Scripting

We have used PyCharm software for writing the python scripts. We have created a project in PyCharm in which 5 python script have been written namely server.py, client.py, middle_man.py, rsa.py and crypto.py



2. Executing python scripts:

For the execution of python scripts for server, client and middleman we have used command prompt and run the following commands in following sequence.

>>python server.py

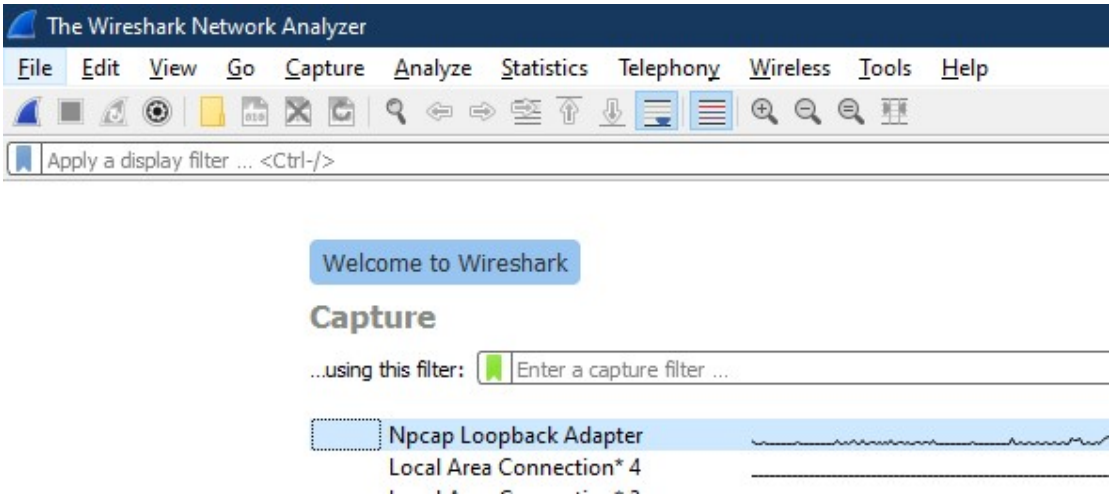
>>python middle_man.py

>>python client.py

3. Wireshark for analyzing:

Wireshark has been used for analyzing network traffic and demonstrating TCP/IP handshake between client, server, and middleman.

Post starting the Wireshark we will select NPCAP Loopback adapter and will click on start capturing packet option which is at top leftmost corner of the tool.



References

[1] "Welcome to Python.org," *Python.org*. [Online]. Available: https://www.python.org/. [Accessed: 12-Dec-2019]

[2] "Wireshark · Download." [Online]. Available: https://www.wireshark.org/download.html. [Accessed: 15-Aug-2020]

[3] "Installation — pip 20.2.2 documentation." [Online]. Available: https://pip.pypa.io/en/stable/installing/. [Accessed: 15-Aug-2020]

[4] "Download PyCharm: Python IDE for Professional Developers by JetBrains," JetBrains. [Online]. Available: https://www.jetbrains.com/pycharm/download/. [Accessed: 15-Aug-2020]