

Our project is written in Python 3 and runs on Linux platform.

You can get our code from Github with:

git clone <https://github.com/tianchuan2017/NetworkSec.git>

Dependencies

You will need the following python packages to run the code. Most of them are usually already installed. But in case you are missing some packages, they can be installed with pip or other python package management tools:

```
=====
import sys
import socket
import re
import base64
import os
import random
import struct
import json
import cryptography
import importlib
=====
```

Server setup

To set up the network, you need to run server.py first, example:

```
chuantian$ python server.py
```

You will be have the choice to add a pattern to IDS, view exsiting patterns, or simply press <enter> to proceed;

```
Starting Intrusion Detection System:
Type 'a' to add a new pattern, 'v' to view the current patterns, or press <enter> to
proceed:
```

When you proceed, you will be asked to enter an port number for the FTP server, here we use 2000 as an example:

```
FTP Server Starting...
Please enter the port number of this FTP Server: 2000
```

If the server set up successfully, you will see a message like:

```
Awaiting connections on: ('129.236.232.104', 2000)
```

The first string in the pathesses is your IP address, the second is the port number. Now we can use them to set up the client side.

Client setup

After you have the server running, you can set up the client with:

```
chuantian$ python client.py
```

You will be asked to enter the IP address and port number of the server

```
Please enter the IP address of the FTP Server: 129.236.232.104
```

```
Please enter the port number of the FTP Server: 2000
```

If the client successfully connects to the server, you will see message like:

```
Connected to server at: ('129.236.232.104', 2000)
```

```
ftp>
```

And now you can send instructions to the FTP server.

Usage

We support basic FTP commands, currently available commands are:

```
put, get, ls, exit
```

Examples:

Client side:

```
ftp> put test.txt
```

Server side will see:

```
Plaintext written to: test.txt
```

```
Hash written to: test.txt.hash
```

Client side:

```
ftp>get test.txt
```

Server side will see:

Sent file: test.txt

Sent hash: test.txt.hash

Client side:

ftp>ls

Server side send a list of files in the current directory:

server.py

test.txt.hash

__pycache__

test.txt

ids.py

intrusion_patterns.dat

Ftp.py

Client side: ftp>exit

Server will close the connection with client.

IDS Usage

When starting a server, you will be able to add patterns to the IDS and view existing patterns:

For example:

chuantian\$ python server.py

Starting Intrusion Detection System

Type 'a' to add a new pattern, 'v' to view the current patterns, or press <enter> to proceed: a

Enter pattern id (int or str): new pattern

Enter pattern in hex: (ex. efa7e779...): 68656C6C6F20776F726C64

Added pattern.

Type 'a' to add a new pattern, 'v' to view the current patterns, or press <enter> to proceed: v

id pattern

new pattern b'hello world'

