Feb 01 2024

NETMANAGEIT

Intelligence Report

Nitrogen shelling malware from hacked sites

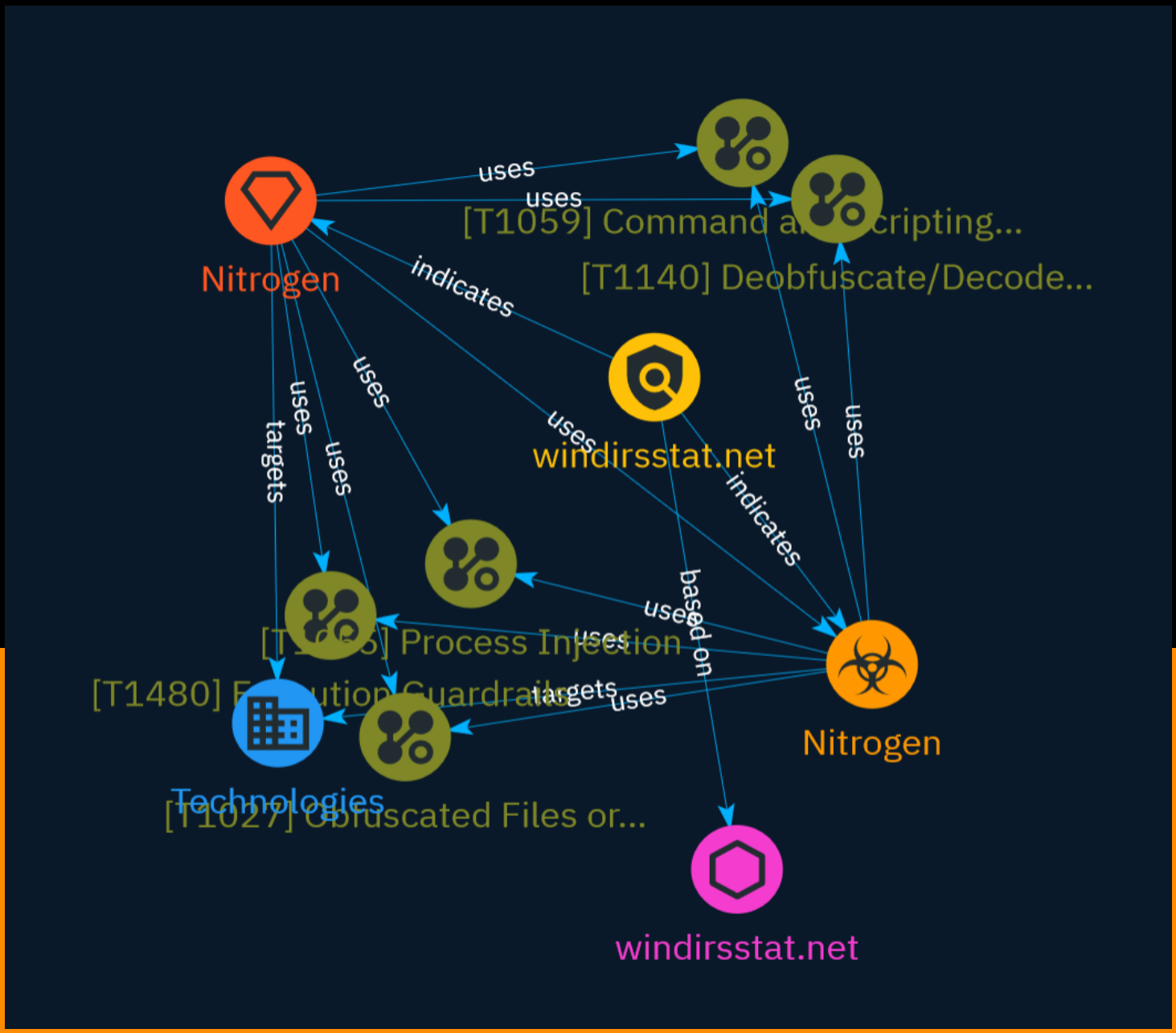

Table of contents

Overview

- Description 4
- Confidence 4
- Content 5

Entities

- Indicator 6
- Intrusion-Set 8
- Malware 9
- Attack-Pattern 10
- Sector 18

Observables

- Domain-Name 19

External References

External References 20

Overview

Description

A recent Nitrogen campaign distributed malware via malicious search ads. The threat actors host payloads on compromised WordPress sites and use Python and DLL side-loading to connect to their command and control server. There is an increased use of web-based attacks to deliver ransomware.

Confidence

This value represents the confidence in the correctness of the data contained within this report.

15 / 100

Content

N/A

Indicator

Name
windirsstat.net

Description
- **Unsafe:** False - **Server:** - **Domain Rank:** 0 - **DNS Valid:** True - **Parking:** False - **Spamming:** False - **Malware:** False - **Phishing:** False - **Suspicious:** True - **Adult:** False - **Category:** N/A - **Domain Age:** {'human': '2 weeks ago', 'timestamp': 1705424669, 'iso': '2024-01-16T12:04:29-05:00'} - **IPQS: Domain:** windirsstat.net - **IPQS: IP Address:** 127.0.0.1

Pattern Type
stix

Pattern
[domain-name:value = 'windirsstat.net']

Name
windirsstat.net

Description
- **Unsafe:** False - **Server:** - **Domain Rank:** 0 - **DNS Valid:** True - **Parking:** False - **Spamming:** False - **Malware:** False - **Phishing:** False - **Suspicious:** True - **Adult:** False - **Category:** N/A - **Domain Age:** {'human': '2 weeks ago',

'timestamp': 1705424669, 'iso': '2024-01-16T12:04:29-05:00'} - **IPQS: Domain:** windirsstat.net - **IPQS: IP Address:** 127.0.0.1

Pattern Type
stix

Pattern
[domain-name:value = 'windirsstat.net']

Intrusion-Set

Name
Nitrogen

Name
Nitrogen

Malware

Name
Nitrogen

Name
Nitrogen

Attack-Pattern

Name
Execution Guardrails
ID
T1480
Description
Adversaries may use execution guardrails to constrain execution or actions based on adversary supplied and environment specific conditions that are expected to be present on the target. Guardrails ensure that a payload only executes against an intended target and reduces collateral damage from an adversary's campaign.(Citation: FireEye Kevin Mandia Guardrails) Values an adversary can provide about a target system or environment to use as guardrails may include specific network share names, attached physical devices, files, joined Active Directory (AD) domains, and local/external IP addresses.(Citation: FireEye Outlook Dec 2019) Guardrails can be used to prevent exposure of capabilities in environments that are not intended to be compromised or operated within. This use of guardrails is distinct from typical [Virtualization/Sandbox Evasion](https://attack.mitre.org/techniques/T1497). While use of [Virtualization/Sandbox Evasion](https://attack.mitre.org/techniques/T1497) may involve checking for known sandbox values and continuing with execution only if there is no match, the use of guardrails will involve checking for an expected target-specific value and only continuing with execution if there is such a match.
Name
Command and Scripting Interpreter

ID

T1059

Description

Adversaries may abuse command and script interpreters to execute commands, scripts, or binaries. These interfaces and languages provide ways of interacting with computer systems and are a common feature across many different platforms. Most systems come with some built-in command-line interface and scripting capabilities, for example, macOS and Linux distributions include some flavor of [Unix Shell](https://attack.mitre.org/techniques/T1059/004) while Windows installations include the [Windows Command Shell](https://attack.mitre.org/techniques/T1059/003) and [PowerShell](https://attack.mitre.org/techniques/T1059/001). There are also cross-platform interpreters such as [Python](https://attack.mitre.org/techniques/T1059/006), as well as those commonly associated with client applications such as [JavaScript](https://attack.mitre.org/techniques/T1059/007) and [Visual Basic](https://attack.mitre.org/techniques/T1059/005). Adversaries may abuse these technologies in various ways as a means of executing arbitrary commands. Commands and scripts can be embedded in [Initial Access](https://attack.mitre.org/tactics/TA0001) payloads delivered to victims as lure documents or as secondary payloads downloaded from an existing C2. Adversaries may also execute commands through interactive terminals/shells, as well as utilize various [Remote Services](https://attack.mitre.org/techniques/T1021) in order to achieve remote Execution. (Citation: Powershell Remote Commands)(Citation: Cisco IOS Software Integrity Assurance - Command History)(Citation: Remote Shell Execution in Python)

Name

Obfuscated Files or Information

ID

T1027

Description

Adversaries may attempt to make an executable or file difficult to discover or analyze by encrypting, encoding, or otherwise obfuscating its contents on the system or in transit. This is common behavior that can be used across different platforms and the network to

evade defenses. Payloads may be compressed, archived, or encrypted in order to avoid detection. These payloads may be used during Initial Access or later to mitigate detection. Sometimes a user's action may be required to open and [Deobfuscate/Decode Files or Information](https://attack.mitre.org/techniques/T1140) for [User Execution](https://attack.mitre.org/techniques/T1204). The user may also be required to input a password to open a password protected compressed/encrypted file that was provided by the adversary. (Citation: Volexity PowerDuke November 2016) Adversaries may also use compressed or archived scripts, such as JavaScript. Portions of files can also be encoded to hide the plain-text strings that would otherwise help defenders with discovery. (Citation: Linux/Cdorked.A We Live Security Analysis) Payloads may also be split into separate, seemingly benign files that only reveal malicious functionality when reassembled. (Citation: Carbon Black Obfuscation Sept 2016) Adversaries may also abuse [Command Obfuscation](https://attack.mitre.org/techniques/T1027/010) to obscure commands executed from payloads or directly via [Command and Scripting Interpreter](https://attack.mitre.org/techniques/T1059). Environment variables, aliases, characters, and other platform/language specific semantics can be used to evade signature based detections and application control mechanisms. (Citation: FireEye Obfuscation June 2017) (Citation: FireEye Revoke-Obfuscation July 2017)(Citation: PaloAlto EncodedCommand March 2017)

Name

Process Injection

ID

T1055

Description

Adversaries may inject code into processes in order to evade process-based defenses as well as possibly elevate privileges. Process injection is a method of executing arbitrary code in the address space of a separate live process. Running code in the context of another process may allow access to the process's memory, system/network resources, and possibly elevated privileges. Execution via process injection may also evade detection from security products since the execution is masked under a legitimate process. There are many different ways to inject code into a process, many of which abuse legitimate functionalities. These implementations exist for every major OS but are typically platform specific. More sophisticated samples may perform multiple process injections to segment modules and further evade detection, utilizing named pipes or other inter-process communication (IPC) mechanisms as a communication channel.

Name

Deobfuscate/Decode Files or Information

ID

T1140

Description

Adversaries may use [Obfuscated Files or Information](https://attack.mitre.org/techniques/T1027) to hide artifacts of an intrusion from analysis. They may require separate mechanisms to decode or deobfuscate that information depending on how they intend to use it. Methods for doing that include built-in functionality of malware or by using utilities present on the system. One such example is the use of [certutil](https://attack.mitre.org/software/S0160) to decode a remote access tool portable executable file that has been hidden inside a certificate file.(Citation: Malwarebytes Targeted Attack against Saudi Arabia) Another example is using the Windows `copy /b` command to reassemble binary fragments into a malicious payload.(Citation: Carbon Black Obfuscation Sept 2016) Sometimes a user's action may be required to open it for deobfuscation or decryption as part of [User Execution](https://attack.mitre.org/techniques/T1204). The user may also be required to input a password to open a password protected compressed/encrypted file that was provided by the adversary. (Citation: Volexity PowerDuke November 2016)

Name

Execution Guardrails

ID

T1480

Description

Adversaries may use execution guardrails to constrain execution or actions based on adversary supplied and environment specific conditions that are expected to be present on the target. Guardrails ensure that a payload only executes against an intended target

and reduces collateral damage from an adversary's campaign.(Citation: FireEye Kevin Mandia Guardrails) Values an adversary can provide about a target system or environment to use as guardrails may include specific network share names, attached physical devices, files, joined Active Directory (AD) domains, and local/external IP addresses.(Citation: FireEye Outlook Dec 2019) Guardrails can be used to prevent exposure of capabilities in environments that are not intended to be compromised or operated within. This use of guardrails is distinct from typical [Virtualization/Sandbox Evasion](https://attack.mitre.org/techniques/T1497). While use of [Virtualization/Sandbox Evasion](https://attack.mitre.org/techniques/T1497) may involve checking for known sandbox values and continuing with execution only if there is no match, the use of guardrails will involve checking for an expected target-specific value and only continuing with execution if there is such a match.

Name

Command and Scripting Interpreter

ID

T1059

Description

Adversaries may abuse command and script interpreters to execute commands, scripts, or binaries. These interfaces and languages provide ways of interacting with computer systems and are a common feature across many different platforms. Most systems come with some built-in command-line interface and scripting capabilities, for example, macOS and Linux distributions include some flavor of [Unix Shell](https://attack.mitre.org/techniques/T1059/004) while Windows installations include the [Windows Command Shell](https://attack.mitre.org/techniques/T1059/003) and [PowerShell](https://attack.mitre.org/techniques/T1059/001). There are also cross-platform interpreters such as [Python](https://attack.mitre.org/techniques/T1059/006), as well as those commonly associated with client applications such as [JavaScript](https://attack.mitre.org/techniques/T1059/007) and [Visual Basic](https://attack.mitre.org/techniques/T1059/005). Adversaries may abuse these technologies in various ways as a means of executing arbitrary commands. Commands and scripts can be embedded in [Initial Access](https://attack.mitre.org/tactics/TA0001) payloads delivered to victims as lure documents or as secondary payloads downloaded from an existing C2. Adversaries may also execute commands through interactive terminals/shells, as well as utilize various [Remote Services](https://attack.mitre.org/techniques/T1021) in order to achieve remote Execution.

(Citation: Powershell Remote Commands)(Citation: Cisco IOS Software Integrity Assurance - Command History)(Citation: Remote Shell Execution in Python)

Name

Obfuscated Files or Information

ID

T1027

Description

Adversaries may attempt to make an executable or file difficult to discover or analyze by encrypting, encoding, or otherwise obfuscating its contents on the system or in transit. This is common behavior that can be used across different platforms and the network to evade defenses. Payloads may be compressed, archived, or encrypted in order to avoid detection. These payloads may be used during Initial Access or later to mitigate detection. Sometimes a user's action may be required to open and [Deobfuscate/Decode Files or Information](https://attack.mitre.org/techniques/T1140) for [User Execution](https://attack.mitre.org/techniques/T1204). The user may also be required to input a password to open a password protected compressed/encrypted file that was provided by the adversary. (Citation: Volexity PowerDuke November 2016) Adversaries may also use compressed or archived scripts, such as JavaScript. Portions of files can also be encoded to hide the plain-text strings that would otherwise help defenders with discovery. (Citation: Linux/Cdorked.A We Live Security Analysis) Payloads may also be split into separate, seemingly benign files that only reveal malicious functionality when reassembled. (Citation: Carbon Black Obfuscation Sept 2016) Adversaries may also abuse [Command Obfuscation](https://attack.mitre.org/techniques/T1027/010) to obscure commands executed from payloads or directly via [Command and Scripting Interpreter](https://attack.mitre.org/techniques/T1059). Environment variables, aliases, characters, and other platform/language specific semantics can be used to evade signature based detections and application control mechanisms. (Citation: FireEye Obfuscation June 2017) (Citation: FireEye Revoke-Obfuscation July 2017)(Citation: PaloAlto EncodedCommand March 2017)

Name

Process Injection

ID

T1055

Description

Adversaries may inject code into processes in order to evade process-based defenses as well as possibly elevate privileges. Process injection is a method of executing arbitrary code in the address space of a separate live process. Running code in the context of another process may allow access to the process's memory, system/network resources, and possibly elevated privileges. Execution via process injection may also evade detection from security products since the execution is masked under a legitimate process. There are many different ways to inject code into a process, many of which abuse legitimate functionalities. These implementations exist for every major OS but are typically platform specific. More sophisticated samples may perform multiple process injections to segment modules and further evade detection, utilizing named pipes or other inter-process communication (IPC) mechanisms as a communication channel.

Name

Deobfuscate/Decode Files or Information

ID

T1140

Description

Adversaries may use [Obfuscated Files or Information](https://attack.mitre.org/techniques/T1027) to hide artifacts of an intrusion from analysis. They may require separate mechanisms to decode or deobfuscate that information depending on how they intend to use it. Methods for doing that include built-in functionality of malware or by using utilities present on the system. One such example is the use of [certutil](https://attack.mitre.org/software/S0160) to decode a remote access tool portable executable file that has been hidden inside a certificate file.(Citation: Malwarebytes Targeted Attack against Saudi Arabia) Another example is using the Windows `copy /b` command to reassemble binary fragments into a malicious payload.(Citation: Carbon Black Obfuscation Sept 2016) Sometimes a user's action may be required to open it for deobfuscation or decryption as part of [User Execution](https://attack.mitre.org/techniques/T1204). The user

may also be required to input a password to open a password protected compressed/encrypted file that was provided by the adversary. (Citation: Volexity PowerDuke November 2016)

Sector

Name
Technologies
Description
Private entities related to the research, development, manufacturing and distribution of electronics, softwares, computers and products related to information technologies.
Name
Technologies
Description
Private entities related to the research, development, manufacturing and distribution of electronics, softwares, computers and products related to information technologies.

Domain-Name

Value
windirsstat.net
windirsstat.net

External References

- https://www.malwarebytes.com/blog/threat-intelligence/2024/01/nitrogen-shelling-malware-from-hacked-sites
- https://otx.alienvault.com/pulse/65bb8a5386b73e91626f22a0