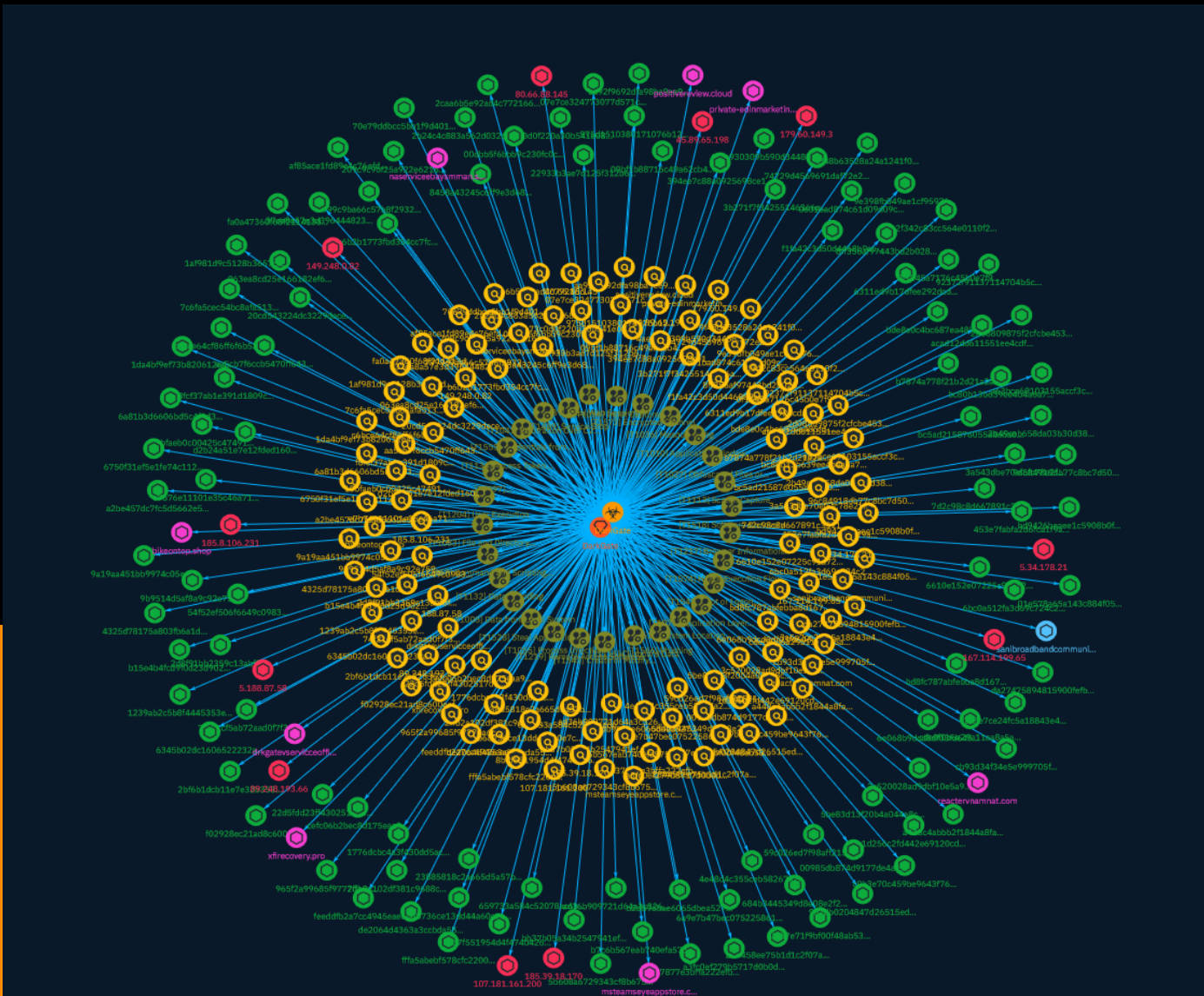


# NETMANAGEIT

## Intelligence Report

# The Continued Evolution of the DarkGate Malware-as-a-Service



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# Overview

## Description

On September 2023, the Trellix Security Operations Center (SOC) successfully detected and stopped an attack against Musaruba, the holding company for Trellix and Skyhigh Security, involving an emerging malware family named DarkGate. First discovered in 2018, DarkGate is a Remote Access Trojan (RAT) that enables attackers to fully compromise victim systems. The software is developed and sold as Malware-as-a-Service (MaaS) by an actor known as RastaFarEye on underground cybercrime forums.

## Confidence

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

15 / 100

# Content

N/A

# Attack-Pattern

**Name**

Boot or Logon Autostart Execution

**ID**

T1547

**Description**

Adversaries may configure system settings to automatically execute a program during system boot or logon to maintain persistence or gain higher-level privileges on compromised systems. Operating systems may have mechanisms for automatically running a program on system boot or account logon.(Citation: Microsoft Run Key)(Citation: MSDN Authentication Packages)(Citation: Microsoft TimeProvider)(Citation: Cylance Reg Persistence Sept 2013)(Citation: Linux Kernel Programming) These mechanisms may include automatically executing programs that are placed in specially designated directories or are referenced by repositories that store configuration information, such as the Windows Registry. An adversary may achieve the same goal by modifying or extending features of the kernel. Since some boot or logon autostart programs run with higher privileges, an adversary may leverage these to elevate privileges.

**Name**

Virtualization/Sandbox Evasion

**ID**

T1497

**Description**

Adversaries may employ various means to detect and avoid virtualization and analysis environments. This may include changing behaviors based on the results of checks for the presence of artifacts indicative of a virtual machine environment (VME) or sandbox. If the adversary detects a VME, they may alter their malware to disengage from the victim or conceal the core functions of the implant. They may also search for VME artifacts before dropping secondary or additional payloads. Adversaries may use the information learned from [Virtualization/Sandbox Evasion](<https://attack.mitre.org/techniques/T1497>) during automated discovery to shape follow-on behaviors.(Citation: Deloitte Environment Awareness) Adversaries may use several methods to accomplish [Virtualization/Sandbox Evasion](<https://attack.mitre.org/techniques/T1497>) such as checking for security monitoring tools (e.g., Sysinternals, Wireshark, etc.) or other system artifacts associated with analysis or virtualization. Adversaries may also check for legitimate user activity to help determine if it is in an analysis environment. Additional methods include use of sleep timers or loops within malware code to avoid operating within a temporary sandbox. (Citation: Unit 42 Pirpi July 2015)

**Name**

Input Capture

**ID**

T1056

**Description**

Adversaries may use methods of capturing user input to obtain credentials or collect information. During normal system usage, users often provide credentials to various different locations, such as login pages/portals or system dialog boxes. Input capture mechanisms may be transparent to the user (e.g. [Credential API Hooking](<https://attack.mitre.org/techniques/T1056/004>)) or rely on deceiving the user into providing input into what they believe to be a genuine service (e.g. [Web Portal Capture](<https://attack.mitre.org/techniques/T1056/003>)).

**Name**

## Steal Application Access Token

**ID**

T1528

**Description**

Adversaries can steal application access tokens as a means of acquiring credentials to access remote systems and resources. Application access tokens are used to make authorized API requests on behalf of a user or service and are commonly used as a way to access resources in cloud and container-based applications and software-as-a-service (SaaS). (Citation: Auth0 - Why You Should Always Use Access Tokens to Secure APIs Sept 2019) OAuth is one commonly implemented framework that issues tokens to users for access to systems. Adversaries who steal account API tokens in cloud and containerized environments may be able to access data and perform actions with the permissions of these accounts, which can lead to privilege escalation and further compromise of the environment. In Kubernetes environments, processes running inside a container communicate with the Kubernetes API server using service account tokens. If a container is compromised, an attacker may be able to steal the container's token and thereby gain access to Kubernetes API commands. (Citation: Kubernetes Service Accounts) Token theft can also occur through social engineering, in which case user action may be required to grant access. An application desiring access to cloud-based services or protected APIs can gain entry using OAuth 2.0 through a variety of authorization protocols. An example commonly-used sequence is Microsoft's Authorization Code Grant flow. (Citation: Microsoft Identity Platform Protocols May 2019) (Citation: Microsoft - OAuth Code Authorization flow - June 2019) An OAuth access token enables a third-party application to interact with resources containing user data in the ways requested by the application without obtaining user credentials. Adversaries can leverage OAuth authorization by constructing a malicious application designed to be granted access to resources with the target user's OAuth token. (Citation: Amnesty OAuth Phishing Attacks, August 2019) (Citation: Trend Micro Pawn Storm OAuth 2017) The adversary will need to complete registration of their application with the authorization server, for example Microsoft Identity Platform using Azure Portal, the Visual Studio IDE, the command-line interface, PowerShell, or REST API calls. (Citation: Microsoft - Azure AD App Registration - May 2019) Then, they can send a [Spearphishing Link] (<https://attack.mitre.org/techniques/T1566/002>) to the target user to entice them to grant access to the application. Once the OAuth access token is granted, the application can gain potentially long-term access to features of the user account through [Application Access Token] (<https://attack.mitre.org/techniques/T1550/001>). (Citation: Microsoft - Azure AD Identity Tokens - Aug 2019) Application access tokens may function within a limited lifetime, limiting how long an adversary can utilize the stolen token. However, in some



cases, adversaries can also steal application refresh tokens(Citation: Auth0 Understanding Refresh Tokens), allowing them to obtain new access tokens without prompting the user.

### Name

Service Stop

### ID

T1489

### Description

Adversaries may stop or disable services on a system to render those services unavailable to legitimate users. Stopping critical services or processes can inhibit or stop response to an incident or aid in the adversary's overall objectives to cause damage to the environment.(Citation: Talos Olympic Destroyer 2018)(Citation: Novetta Blockbuster) Adversaries may accomplish this by disabling individual services of high importance to an organization, such as `MSEExchangeIS`, which will make Exchange content inaccessible (Citation: Novetta Blockbuster). In some cases, adversaries may stop or disable many or all services to render systems unusable.(Citation: Talos Olympic Destroyer 2018) Services or processes may not allow for modification of their data stores while running. Adversaries may stop services or processes in order to conduct [Data Destruction](https://attack.mitre.org/techniques/T1485) or [Data Encrypted for Impact](https://attack.mitre.org/techniques/T1486) on the data stores of services like Exchange and SQL Server.(Citation: SecureWorks WannaCry Analysis)

### Name

Masquerading

### ID

T1036

### Description

Adversaries may attempt to manipulate features of their artifacts to make them appear legitimate or benign to users and/or security tools. Masquerading occurs when the name or location of an object, legitimate or malicious, is manipulated or abused for the sake of evading defenses and observation. This may include manipulating file metadata, tricking users into misidentifying the file type, and giving legitimate task or service names. Renaming abusible system utilities to evade security monitoring is also a form of [Masquerading](https://attack.mitre.org/techniques/T1036). (Citation: LOLBAS Main Site) Masquerading may also include the use of [Proxy](https://attack.mitre.org/techniques/T1090) or VPNs to disguise IP addresses, which can allow adversaries to blend in with normal network traffic and bypass conditional access policies or anti-abuse protections.

**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**

Encrypted Channel

**ID**

T1573

**Description**

Adversaries may employ a known encryption algorithm to conceal command and control traffic rather than relying on any inherent protections provided by a communication protocol. Despite the use of a secure algorithm, these implementations may be vulnerable to reverse engineering if secret keys are encoded and/or generated within malware samples/configuration files.

**Name**

Browser Information Discovery

**ID**

T1217

**Description**

Adversaries may enumerate information about browsers to learn more about compromised environments. Data saved by browsers (such as bookmarks, accounts, and browsing history) may reveal a variety of personal information about users (e.g., banking sites, relationships/interests, social media, etc.) as well as details about internal network resources such as servers, tools/dashboards, or other related infrastructure.(Citation: Kaspersky Autofill) Browser information may also highlight additional targets after an adversary has access to valid credentials, especially [Credentials In Files](<https://attack.mitre.org/techniques/T1552/001>) associated with logins cached by a browser. Specific storage locations vary based on platform and/or application, but browser information is typically stored in local files and databases (e.g., `%APPDATA%/Google/Chrome`).(Citation: Chrome Roaming Profiles)

**Name**

System Location Discovery

**ID**

T1614

**Description**

Adversaries may gather information in an attempt to calculate the geographical location of a victim host. Adversaries may use the information from [System Location Discovery] (<https://attack.mitre.org/techniques/T1614>) during automated discovery to shape follow-on behaviors, including whether or not the adversary fully infects the target and/or attempts specific actions. Adversaries may attempt to infer the location of a system using various system checks, such as time zone, keyboard layout, and/or language settings. (Citation: FBI Ragnar Locker 2020)(Citation: Sophos Geolocation 2016)(Citation: Bleepingcomputer RAT malware 2020) Windows API functions such as `GetLocaleInfoW`` can also be used to determine the locale of the host.(Citation: FBI Ragnar Locker 2020) In cloud environments, an instance's availability zone may also be discovered by accessing the instance metadata service from the instance.(Citation: AWS Instance Identity Documents) (Citation: Microsoft Azure Instance Metadata 2021) Adversaries may also attempt to infer the location of a victim host using IP addressing, such as via online geolocation IP-lookup services.(Citation: Securelist Transparent Tribe 2020)(Citation: Sophos Geolocation 2016)

**Name**

Application Window Discovery

**ID**

T1010

**Description**

Adversaries may attempt to get a listing of open application windows. Window listings could convey information about how the system is used.(Citation: Prevailion DarkWatchman 2021) For example, information about application windows could be used to identify potential data to collect as well as identifying security tooling ([Security Software Discovery](<https://attack.mitre.org/techniques/T1518/001>)) to evade.(Citation: ESET Grandoreiro April 2020) Adversaries typically abuse system features for this type of enumeration. For example, they may gather information through native system features such as [Command and Scripting Interpreter](<https://attack.mitre.org/techniques/T1059>) commands and [Native API](<https://attack.mitre.org/techniques/T1106>) functions.

**Name**

Phishing

**ID**

T1566

**Description**

Adversaries may send phishing messages to gain access to victim systems. All forms of phishing are electronically delivered social engineering. Phishing can be targeted, known as spearphishing. In spearphishing, a specific individual, company, or industry will be targeted by the adversary. More generally, adversaries can conduct non-targeted phishing, such as in mass malware spam campaigns. Adversaries may send victims emails containing malicious attachments or links, typically to execute malicious code on victim systems. Phishing may also be conducted via third-party services, like social media platforms. Phishing may also involve social engineering techniques, such as posing as a trusted source, as well as evasive techniques such as removing or manipulating emails or metadata/headers from compromised accounts being abused to send messages (e.g., [Email Hiding Rules](https://attack.mitre.org/techniques/T1564/008)).(Citation: Microsoft OAuth Spam 2022)(Citation: Palo Alto Unit 42 VBA Infostealer 2014) Another way to accomplish this is by forging or spoofing(Citation: Proofpoint-spoof) the identity of the sender which can be used to fool both the human recipient as well as automated security tools.(Citation: cyberproof-double-bounce) Victims may also receive phishing messages that instruct them to call a phone number where they are directed to visit a malicious URL, download malware,(Citation: sygnia Luna Month)(Citation: CISA Remote Monitoring and Management Software) or install adversary-accessible remote management tools onto their computer (i.e., [User Execution](https://attack.mitre.org/techniques/T1204)).(Citation: Unit42 Luna Moth)

**Name**

Credentials from Password Stores

**ID**

T1555

**Description**

Adversaries may search for common password storage locations to obtain user credentials. Passwords are stored in several places on a system, depending on the operating system or application holding the credentials. There are also specific applications and services that store passwords to make them easier for users to manage and maintain, such as password managers and cloud secrets vaults. Once credentials are obtained, they can be used to perform lateral movement and access restricted information.

**Name**

Software Discovery

**ID**

T1518

**Description**

Adversaries may attempt to get a listing of software and software versions that are installed on a system or in a cloud environment. Adversaries may use the information from [Software Discovery](<https://attack.mitre.org/techniques/T1518>) during automated discovery to shape follow-on behaviors, including whether or not the adversary fully infects the target and/or attempts specific actions. Adversaries may attempt to enumerate software for a variety of reasons, such as figuring out what security measures are present or if the compromised system has a version of software that is vulnerable to [Exploitation for Privilege Escalation](<https://attack.mitre.org/techniques/T1068>).

**Name**

Data Encoding

**ID**

T1132

**Description**

Adversaries may encode data to make the content of command and control traffic more difficult to detect. Command and control (C2) information can be encoded using a standard data encoding system. Use of data encoding may adhere to existing protocol specifications and includes use of ASCII, Unicode, Base64, MIME, or other binary-to-text and character encoding systems.(Citation: Wikipedia Binary-to-text Encoding) (Citation: Wikipedia Character Encoding) Some data encoding systems may also result in data compression, such as gzip.

**Name**

User Execution

**ID**

T1204

**Description**

An adversary may rely upon specific actions by a user in order to gain execution. Users may be subjected to social engineering to get them to execute malicious code by, for example, opening a malicious document file or link. These user actions will typically be observed as follow-on behavior from forms of [Phishing](https://attack.mitre.org/techniques/T1566). While [User Execution](https://attack.mitre.org/techniques/T1204) frequently occurs shortly after Initial Access it may occur at other phases of an intrusion, such as when an adversary places a file in a shared directory or on a user's desktop hoping that a user will click on it. This activity may also be seen shortly after [Internal Spearphishing](https://attack.mitre.org/techniques/T1534). Adversaries may also deceive users into performing actions such as enabling [Remote Access Software](https://attack.mitre.org/techniques/T1219), allowing direct control of the system to the adversary, or downloading and executing malware for [User Execution](https://attack.mitre.org/techniques/T1204). For example, tech support scams can be facilitated through [Phishing](https://attack.mitre.org/techniques/T1566), vishing, or various forms of user interaction. Adversaries can use a combination of these methods, such as spoofing and promoting toll-free numbers or call centers that are used to direct victims to malicious websites, to deliver and execute payloads containing malware or [Remote Access Software](https://attack.mitre.org/techniques/T1219).(Citation: Telephone Attack Delivery)

**Name**

Data from Local System

**ID**

T1005

**Description**

Adversaries may search local system sources, such as file systems and configuration files or local databases, to find files of interest and sensitive data prior to Exfiltration. Adversaries may do this using a [Command and Scripting Interpreter](<https://attack.mitre.org/techniques/T1059>), such as [cmd](<https://attack.mitre.org/software/S0106>) as well as a [Network Device CLI](<https://attack.mitre.org/techniques/T1059/008>), which have functionality to interact with the file system to gather information.(Citation: show\_run\_config\_cmd\_cisco) Adversaries may also use [Automated Collection](<https://attack.mitre.org/techniques/T1119>) on the local system.

**Name**

Create or Modify System Process

**ID**

T1543

**Description**

Adversaries may create or modify system-level processes to repeatedly execute malicious payloads as part of persistence. When operating systems boot up, they can start processes that perform background system functions. On Windows and Linux, these system processes are referred to as services.(Citation: TechNet Services) On macOS, launchd processes known as [Launch Daemon](<https://attack.mitre.org/techniques/T1543/004>) and [Launch Agent](<https://attack.mitre.org/techniques/T1543/001>) are run to finish system initialization and load user specific parameters.(Citation: AppleDocs Launch Agent Daemons) Adversaries may install new services, daemons, or agents that can be configured to execute at startup or a repeatable interval in order to establish persistence.



Similarly, adversaries may modify existing services, daemons, or agents to achieve the same effect. Services, daemons, or agents may be created with administrator privileges but executed under root/SYSTEM privileges. Adversaries may leverage this functionality to create or modify system processes in order to escalate privileges.(Citation: OSX Malware Detection)

**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**

## Hijack Execution Flow

**ID**

T1574

**Description**

Adversaries may execute their own malicious payloads by hijacking the way operating systems run programs. Hijacking execution flow can be for the purposes of persistence, since this hijacked execution may reoccur over time. Adversaries may also use these mechanisms to elevate privileges or evade defenses, such as application control or other restrictions on execution. There are many ways an adversary may hijack the flow of execution, including by manipulating how the operating system locates programs to be executed. How the operating system locates libraries to be used by a program can also be intercepted. Locations where the operating system looks for programs/resources, such as file directories and in the case of Windows the Registry, could also be poisoned to include malicious payloads.

**Name**

Access Token Manipulation

**ID**

T1134

**Description**

Adversaries may modify access tokens to operate under a different user or system security context to perform actions and bypass access controls. Windows uses access tokens to determine the ownership of a running process. A user can manipulate access tokens to make a running process appear as though it is the child of a different process or belongs to someone other than the user that started the process. When this occurs, the process also takes on the security context associated with the new token. An adversary can use built-in Windows API functions to copy access tokens from existing processes; this is known as token stealing. These token can then be applied to an existing process (i.e. [Token Impersonation/Theft](https://attack.mitre.org/techniques/T1134/001)) or used to

spawn a new process (i.e. [Create Process with Token](https://attack.mitre.org/techniques/T1134/002)). An adversary must already be in a privileged user context (i.e. administrator) to steal a token. However, adversaries commonly use token stealing to elevate their security context from the administrator level to the SYSTEM level. An adversary can then use a token to authenticate to a remote system as the account for that token if the account has appropriate permissions on the remote system.(Citation: Pentestlab Token Manipulation) Any standard user can use the ``runas`` command, and the Windows API functions, to create impersonation tokens; it does not require access to an administrator account. There are also other mechanisms, such as Active Directory fields, that can be used to modify access tokens.

**Name**

Remote Access Software

**ID**

T1219

**Description**

An adversary may use legitimate desktop support and remote access software to establish an interactive command and control channel to target systems within networks. These services, such as ``VNC``, ``Team Viewer``, ``AnyDesk``, ``ScreenConnect``, ``LogMein``, ``AmmyAdmin``, and other remote monitoring and management (RMM) tools, are commonly used as legitimate technical support software and may be allowed by application control within a target environment.(Citation: Symantec Living off the Land) (Citation: CrowdStrike 2015 Global Threat Report)(Citation: CrySys Blog TeamSpy) Remote access software may be installed and used post-compromise as an alternate communications channel for redundant access or as a way to establish an interactive remote desktop session with the target system. They may also be used as a component of malware to establish a reverse connection or back-connect to a service or adversary controlled system. Adversaries may similarly abuse response features included in EDR and other defensive tools that enable remote access. Installation of many remote access software may also include persistence (e.g., the software's installation routine creates a [Windows Service](https://attack.mitre.org/techniques/T1543/003)).

**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**

Steal Web Session Cookie

**ID**

T1539

**Description**

An adversary may steal web application or service session cookies and use them to gain access to web applications or Internet services as an authenticated user without needing credentials. Web applications and services often use session cookies as an authentication token after a user has authenticated to a website. Cookies are often valid for an extended period of time, even if the web application is not actively used. Cookies can be found on disk, in the process memory of the browser, and in network traffic to remote systems. Additionally, other applications on the targets machine might store sensitive authentication cookies in memory (e.g. apps which authenticate to cloud services). Session cookies can be used to bypasses some multi-factor authentication protocols.(Citation: Pass The Cookie) There are several examples of malware targeting cookies from web browsers on the local system.(Citation: Kaspersky TajMahal April 2019)(Citation: Unit 42 Mac Crypto Cookies January 2019) There are also open source frameworks such as `Evilginx2` and `Muraena` that can gather session cookies through a malicious proxy (ex: [Adversary-in-the-Middle](https://attack.mitre.org/techniques/T1557)) that can be set up by an adversary and used in phishing campaigns.(Citation: Github evilginx2)(Citation: GitHub Mauraena) After an adversary acquires a valid cookie, they can then perform a [Web Session Cookie] (https://attack.mitre.org/techniques/T1550/004) technique to login to the corresponding web application.

**Name**

Application Layer Protocol

**ID**

T1071

**Description**

Adversaries may communicate using OSI application layer protocols to avoid detection/network filtering by blending in with existing traffic. Commands to the remote system, and often the results of those commands, will be embedded within the protocol traffic between the client and server. Adversaries may utilize many different protocols, including those used for web browsing, transferring files, electronic mail, or DNS. For connections that occur internally within an enclave (such as those between a proxy or pivot node and other nodes), commonly used protocols are SMB, SSH, or RDP.

**Name**

## File and Directory Discovery

**ID**

T1083

**Description**

Adversaries may enumerate files and directories or may search in specific locations of a host or network share for certain information within a file system. Adversaries may use the information from [File and Directory Discovery](<https://attack.mitre.org/techniques/T1083>) during automated discovery to shape follow-on behaviors, including whether or not the adversary fully infects the target and/or attempts specific actions. Many command shell utilities can be used to obtain this information. Examples include ``dir``, ``tree``, ``ls``, ``find``, and ``locate``.(Citation: Windows Commands JPCERT) Custom tools may also be used to gather file and directory information and interact with the [Native API](<https://attack.mitre.org/techniques/T1106>). Adversaries may also leverage a [Network Device CLI](<https://attack.mitre.org/techniques/T1059/008>) on network devices to gather file and directory information (e.g. ``dir``, ``show flash``, and/or ``nvram``). (Citation: US-CERT-TA18-106A)

**Name**

Screen Capture

**ID**

T1113

**Description**

Adversaries may attempt to take screen captures of the desktop to gather information over the course of an operation. Screen capturing functionality may be included as a feature of a remote access tool used in post-compromise operations. Taking a screenshot is also typically possible through native utilities or API calls, such as ``CopyFromScreen``, ``xwd``, or ``screencapture``.(Citation: CopyFromScreen .NET)(Citation: Antiquated Mac Malware)

**Name**

Clipboard Data

**ID**

T1115

**Description**

Adversaries may collect data stored in the clipboard from users copying information within or between applications. For example, on Windows adversaries can access clipboard data by using `clip.exe` or `Get-Clipboard`.(Citation: MSDN Clipboard)(Citation: clip\_win\_server)(Citation: CISA\_AA21\_200B) Additionally, adversaries may monitor then replace users' clipboard with their data (e.g., [Transmitted Data Manipulation](https://attack.mitre.org/techniques/T1565/002)).(Citation: mining\_ruby\_reversinglabs) macOS and Linux also have commands, such as `pbpaste`, to grab clipboard contents.(Citation: Operating with EmPyre)

**Name**

Exfiltration Over C2 Channel

**ID**

T1041

**Description**

Adversaries may steal data by exfiltrating it over an existing command and control channel. Stolen data is encoded into the normal communications channel using the same protocol as command and control communications.

# Indicator

**Name**

3b271f7f34255146366ab7c7d916fa5ab3b1accfc4b0f3d727e16690cfb7ad3a

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'3b271f7f34255146366ab7c7d916fa5ab3b1accfc4b0f3d727e16690cfb7ad3a']

**Name**

bd8fc787abfebbba8d167e9979c2ec692f861ab21ea138c3381daa852a58677be

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'bd8fc787abfebbba8d167e9979c2ec692f861ab21ea138c3381daa852a58677be']

**Name**



1af981d9c5128b3657cdb5506d61563e0d1908b957e5dd6842059d6d3cfdc622

**Pattern Type**

stix

**Pattern**

[file:hashes:'SHA-256' =  
'1af981d9c5128b3657cdb5506d61563e0d1908b957e5dd6842059d6d3cfdc622']

**Name**

74729d4569691daf72e23849e91461471411f551639663e11e1091a48790611e

**Description**

#LowFiCheckAVFolders

**Pattern Type**

stix

**Pattern**

[file:hashes:'SHA-256' =  
'74729d4569691daf72e23849e91461471411f551639663e11e1091a48790611e']

**Name**

bec37877e3bffa222efb5c5680c7defd2d917317293d7fa70e0882ad45290a40

**Pattern Type**

stix

**Pattern**

[file:hashes:'SHA-256' =  
'bec37877e3bffa222efb5c5680c7defd2d917317293d7fa70e0882ad45290a40']

**Name**

37ea8a57e3d3964448238aff31125381c7063b98e1fe0d83a20b315b70546c94

**Pattern Type**

stix

**Pattern**

[file:hashes:'SHA-256' =  
'37ea8a57e3d3964448238aff31125381c7063b98e1fe0d83a20b315b70546c94']

**Name**

drkgatevservicceoffice.net

**Description**

DarkGate botnet C2 domain (confidence level: 100%)

**Pattern Type**

stix

**Pattern**

[domain-name:value = 'drkgatevservicceoffice.net']

**Name**

107.181.161.200

**Description**

DarkGate botnet C2 server (confidence level: 100%)

**Pattern Type**

stix

**Pattern**

[ipv4-addr:value = '107.181.161.200']

**Name**

bde8e0c4bc687ea485fd4a00c86bd25ab14a04edf9b2bbc03808e9b86074717b

**Pattern Type**

stix

**Pattern**

[file:hashes:'SHA-256' =  
'bde8e0c4bc687ea485fd4a00c86bd25ab14a04edf9b2bbc03808e9b86074717b']

**Name**

89.248.193.66

**Description**

DarkGate botnet C2 server (confidence level: 100%)

**Pattern Type**

stix

**Pattern**

[ipv4-addr:value = '89.248.193.66']

**Name**

6750f31ef5e1fe74c1121b0ab1308f93e09505a63322b6ce16fe04099ce8993e

**Description**

#LowFiCheckAVFolders

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'6750f31ef5e1fe74c1121b0ab1308f93e09505a63322b6ce16fe04099ce8993e']

**Name**

bc5ad215876055a8a6a097579e16d24e233a323a6157afbb6db49705ac12a1f1

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'bc5ad215876055a8a6a097579e16d24e233a323a6157afbb6db49705ac12a1f1']

**Name**

4e48d4c355ceb58267a29fd3337b101722c805a7e53662816b73ce9b756ae321

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'4e48d4c355ceb58267a29fd3337b101722c805a7e53662816b73ce9b756ae321']

**Name**

20cd543224dc3229dece35f018678a52fc98e533596e4995a5534bde0e7e161f

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'20cd543224dc3229dece35f018678a52fc98e533596e4995a5534bde0e7e161f']

**Name**

659733a584c52078ac6b568dfb34a089bef2b3835a5ea737d32c1623a468b743

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'659733a584c52078ac6b568dfb34a089bef2b3835a5ea737d32c1623a468b743']

**Name**

ad36b909721d64a3c32678f4c2ca758d81661088ba1ed57bec50ef0ac4d4a871

**Description**

Delphi

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'ad36b909721d64a3c32678f4c2ca758d81661088ba1ed57bec50ef0ac4d4a871']

**Name**

aa92f9692dfa98ba9ee991156612f2015c10a5ecf02b605b0b6d528827430601

**Description**

Cabinet\_Archive

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'aa92f9692dfa98ba9ee991156612f2015c10a5ecf02b605b0b6d528827430601']

**Name**

6a9e7b47bec075225861d61cf20555c38a17b7b9ff46ff85de7f6791c548cc2e

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'6a9e7b47bec075225861d61cf20555c38a17b7b9ff46ff85de7f6791c548cc2e']

**Name**

9a19aa451bb9974c05e616bf02762ee001cc02669aca15150199415e5e190f01

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'9a19aa451bb9974c05e616bf02762ee001cc02669aca15150199415e5e190f01']

**Name**

00985db874d9177de4a18999f7a420260b3a4665ba2b5b32aa39433ef79819df

**Description**

#LowFiCheckAVFolders

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'00985db874d9177de4a18999f7a420260b3a4665ba2b5b32aa39433ef79819df']

**Name**

3c520028ad9dbf10e5a94023fbbd5ca7134802a6def3fae427f70620c12f8988

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'3c520028ad9dbf10e5a94023fbbd5ca7134802a6def3fae427f70620c12f8988']

**Name**

0e01bad874c61d09d09ce06f76f5e46f6648a1fc943644874c8e1a53a93af9a7

**Description**

W32/Injector

**Pattern Type**



stix

**Pattern**

[file:hashes:'SHA-256' =  
'0e01bad874c61d09d09ce06f76f5e46f6648a1fc943644874c8e1a53a93af9a7']

**Name**

5be83d13f20b4a044a8c8281d13723a808555cdd73a7ddcec37422a4e44fbd4e

**Pattern Type**

stix

**Pattern**

[file:hashes:'SHA-256' =  
'5be83d13f20b4a044a8c8281d13723a808555cdd73a7ddcec37422a4e44fbd4e']

**Name**

5.188.87.58

**Description**

DarkGate botnet C2 server (confidence level: 100%)

**Pattern Type**

stix

**Pattern**

[ipv4-addr:value = '5.188.87.58']

**Name**

6311ed9b17dfef292dcdc9dabbde47a1148e384c33d8ee8294b3e32111ce80a4

**Pattern Type**

stix

**Pattern**

[file:hashes:'SHA-256' =  
'6311ed9b17dfef292dcdc9dabbde47a1148e384c33d8ee8294b3e32111ce80a4']

**Name**

feeddfb2a7cc4945eaedd8f75907c42ff097252c3e38d7ef2006bd7a191f09ae

**Pattern Type**

stix

**Pattern**

[file:hashes:'SHA-256' =  
'feeddfb2a7cc4945eaedd8f75907c42ff097252c3e38d7ef2006bd7a191f09ae']

**Name**

bikeontop.shop

**Description**

DarkGate botnet C2 domain (confidence level: 100%)

**Pattern Type**

stix

**Pattern**

[domain-name:value = 'bikeontop.shop']

**Name**

b2db96bae6065dbea52711c6f732a29bd39cbb4e81dde9e7d854d52cfb1970f0

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'b2db96bae6065dbea52711c6f732a29bd39cbb4e81dde9e7d854d52cfb1970f0']

**Name**

msteamseyeappstore.com

**Description**

DarkGate botnet C2 domain (confidence level: 100%)

**Pattern Type**

stix

**Pattern**

[domain-name:value = 'msteamseyeappstore.com']

**Name**

acad12dd611551ee4cdfd9fba7dd06c1f6a7c4d8cd8619cbbafa3d8f88bde910

**Pattern Type**

stix

**Pattern**

[file:hashes:'SHA-256' =  
'acad12dd611551ee4cdfd9fba7dd06c1f6a7c4d8cd8619cbbafa3d8f88bde910']

**Name**

cde0f0b6a29a11aa8a5a4ee543fd632cb460bc11927c7153c1f5f8664e474d23

**Description**

Cabinet\_Archive

**Pattern Type**

stix

**Pattern**

[file:hashes:'SHA-256' =  
'cde0f0b6a29a11aa8a5a4ee543fd632cb460bc11927c7153c1f5f8664e474d23']

**Name**

c6bce64cf86ff6f6b52b9ffa8b8dc2283645b9f0cea7391117d5dd80c2092ce6

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'c6bce64cf86ff6f6b52b9ffa8b8dc2283645b9f0cea7391117d5dd80c2092ce6']

**Name**

0f1545a7176c45b0e7f9198cac8972167e5846e8b84cd40926f7edf338eeace2

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'0f1545a7176c45b0e7f9198cac8972167e5846e8b84cd40926f7edf338eeace2']

**Name**

1776dcbc4a3f430dd5ace833aac80b0954a050e5a7dec164b53b62fbe72feab3

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'1776dcbc4a3f430dd5ace833aac80b0954a050e5a7dec164b53b62fbe72feab3']

**Name**

209c9c9bf25a922e62163f8d2d525b046b345d14c29bdfac0a05c83706052d93

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'209c9c9bf25a922e62163f8d2d525b046b345d14c29bdfac0a05c83706052d93']

**Name**

3a5e7ce24fc5a18843e4f877f5c704bf95eb90c039bc8d791273c191e4ca3242

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'3a5e7ce24fc5a18843e4f877f5c704bf95eb90c039bc8d791273c191e4ca3242']

**Name**

f02928ec21ad8c600eef3e3a006581a3af858975cbc2ad29ba3dfdd1a78d3cb9

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'f02928ec21ad8c600eef3e3a006581a3af858975cbc2ad29ba3dfdd1a78d3cb9']

**Name**

b7874a778f21b2d21a2a2ab2c2ec4a7ae5042443e1d3f20a070424d628079056

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'b7874a778f21b2d21a2a2ab2c2ec4a7ae5042443e1d3f20a070424d628079056']

**Name**

de2064d4363a3ccbda5518c619f1c803393b0876e349530583a72b1d1643c16a

**Description**

Cabinet\_Archive

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'de2064d4363a3ccbda5518c619f1c803393b0876e349530583a72b1d1643c16a']

**Name**

8458a43245c6ff9e3d688a8393f692d3088bf5338ae810ff78b8b3a1d751a87e

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'8458a43245c6ff9e3d688a8393f692d3088bf5338ae810ff78b8b3a1d751a87e']

**Name**

09bf1b88716c49a62cb4ff708f7ff4f09cb7c3ff42e58661802cd66f1a2a0311

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'09bf1b88716c49a62cb4ff708f7ff4f09cb7c3ff42e58661802cd66f1a2a0311']

**Name**

1239ab2c5b8f4445353eachba276938c9cce9711a643851db8979728defc5a3ee

**Pattern Type**

stix

**Pattern**



[file:hashes!'SHA-256' =  
'1239ab2c5b8f4445353eacba276938c9cce9711a643851db8979728defc5a3ee']

**Name**

f8fcf37ab1e391d1809c4b5baf00d669c4263682d99230432c5199bde5914a60

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'f8fcf37ab1e391d1809c4b5baf00d669c4263682d99230432c5199bde5914a60']

**Name**

453e7fabfa2d6fca1f9a5b9edc456e46417d8fb76332d397a39fcc8e76ccf54f

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'453e7fabfa2d6fca1f9a5b9edc456e46417d8fb76332d397a39fcc8e76ccf54f']

**Name**

a2be457dc7fc5d5662e5db1b51b77094898449fedab7b1a9f837c093c249c5ba

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'a2be457dc7fc5d5662e5db1b51b77094898449fedab7b1a9f837c093c249c5ba']

**Name**

9e398fb049ae1cf95976ba1c80280cb3f78833569fe7fc5c1ba93c7e57c00fac

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'9e398fb049ae1cf95976ba1c80280cb3f78833569fe7fc5c1ba93c7e57c00fac']

**Name**

b7c6b567eab740efa575826c94f4c9c552ed5894b8b3ef57e77959b740d8bec8

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'b7c6b567eab740efa575826c94f4c9c552ed5894b8b3ef57e77959b740d8bec8']

**Name**

2caa6b5e92ad4c772166860d428d388a4fa376c5adc439b10ee2f045e0a1b003

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'2caa6b5e92ad4c772166860d428d388a4fa376c5adc439b10ee2f045e0a1b003']

**Name**

bd9426beaee1c5908b0f71b31539ae4fe3ffed155ab00041b543d48fda3f1654

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'bd9426beaee1c5908b0f71b31539ae4fe3ffed155ab00041b543d48fda3f1654']

**Name**

54f52ef506f6649c09838b9935aed223f0f320798e13fdb9541ffd1db3e08816

**Description**

Cabinet\_Archive

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'54f52ef506f6649c09838b9935aed223f0f320798e13fdb9541ffd1db3e08816']

**Name**

2b24c4c883a562d0326846ee1c92840144d1d755cdb721b24a35038ea92aa0e4

**Description**

#LowFiCheckAVFolders

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'2b24c4c883a562d0326846ee1c92840144d1d755cdb721b24a35038ea92aa0e4']

**Name**

684b3445349d8e08e2f2d33f3b30d509a3fde82cb798ccbad2726105301a9470

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'684b3445349d8e08e2f2d33f3b30d509a3fde82cb798ccbad2726105301a9470']

**Name**

45.89.65.198

**Description**

DarkGate botnet C2 server (confidence level: 100%)

**Pattern Type**

stix

**Pattern**

[ipv4-addr:value = '45.89.65.198']

**Name**

2b49ceb658da03b30d38ee2dc46bcf2bb85af728cece29f8c30d7c1a92c1ad09

**Pattern Type**

stix

**Pattern**

[file:hashes:'SHA-256' =  
'2b49ceb658da03b30d38ee2dc46bcf2bb85af728cece29f8c30d7c1a92c1ad09']

**Name**

6345b02dc1606522232ac853a0e2599d166aef91ae1d7f4d4104d184273dc1e8

**Pattern Type**

stix

**Pattern**

[file:hashes:'SHA-256' = '6345b02dc1606522232ac853a0e2599d166aef91ae1d7f4d4104d184273dc1e8']

**Name**

80.66.88.145

**Description**

DarkGate botnet C2 server (confidence level: 100%)

**Pattern Type**

stix

**Pattern**

[ipv4-addr:value = '80.66.88.145']

**Name**

1d256c2fd442e69120cdf8d12d7bd865f058ec667e2119a66259fc9052dbaa36

**Pattern Type**

stix

**Pattern**

[file:hashes:'SHA-256' = '1d256c2fd442e69120cdf8d12d7bd865f058ec667e2119a66259fc9052dbaa36']

**Name**

aa5cb7f6ccb5470ff643cfcba9254263c9db9e7a84984d30166cc14945e219f2

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'aa5cb7f6ccb5470ff643cfcba9254263c9db9e7a84984d30166cc14945e219f2']

**Name**

9f48b63528a24a1241f0bc793e960d420314d595c9927e2294f4475c4be143cd

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'9f48b63528a24a1241f0bc793e960d420314d595c9927e2294f4475c4be143cd']

**Name**

c9b3e70c459be9643f764afd535976f9d308d098e1476013de431e7aea22b3e9

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'c9b3e70c459be9643f764afd535976f9d308d098e1476013de431e7aea22b3e9']

**Name**

b6b2b1773fbd354cc7fcf409f4b4208e570be077658c2a92ea59319c250d9f8c

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'b6b2b1773fbd354cc7fcf409f4b4208e570be077658c2a92ea59319c250d9f8c']

**Name**

01e578a65a143c884f054c96574f2f9e203b49f47ebf74a0749ff484866b2eb7

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'01e578a65a143c884f054c96574f2f9e203b49f47ebf74a0749ff484866b2eb7']

**Name**

2ffb2a102df381c9688cc78c2cba4faa6a561d5aa78a9163888ebf7c73bdc8d0

**Pattern Type**



stix

**Pattern**

[file:hashes!'SHA-256' =  
'2ffb2a102df381c9688cc78c2cba4faa6a561d5aa78a9163888ebf7c73bdc8d0']

**Name**

4aea930309b590d34488187a8c9cb31b83ff1faa2ff4d27606e50fac3a0db742

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'4aea930309b590d34488187a8c9cb31b83ff1faa2ff4d27606e50fac3a0db742']

**Name**

cb93d34f34e5e999705fd5d17d6725b452c57bc799fc835899e4af9330f4169f

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'cb93d34f34e5e999705fd5d17d6725b452c57bc799fc835899e4af9330f4169f']

**Name**

4325d78175a803fb6a1d235e8255816a07283501087e1b115f28c38b6b542856

**Description**

Cabinet\_Archive

**Pattern Type**

stix

**Pattern**

[file:hashes:'SHA-256' =  
'4325d78175a803fb6a1d235e8255816a07283501087e1b115f28c38b6b542856']

**Name**

92372f91137114704b5c7cc10882eced9636997486832c5504551e2ba894cb34

**Pattern Type**

stix

**Pattern**

[file:hashes:'SHA-256' =  
'92372f91137114704b5c7cc10882eced9636997486832c5504551e2ba894cb34']

**Name**

cefc06b2bec8d175eaa9bf3f91c8246731811a8ad7b52af336478655dbc70039

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'cefc06b2bec8d175eaa9bf3f91c8246731811a8ad7b52af336478655dbc70039']

**Name**

fa0a47360f68f211413d582d2c73035594a9191c2399c52612c940b45402065f

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'fa0a47360f68f211413d582d2c73035594a9191c2399c52612c940b45402065f']

**Name**

59c026ed7f98aff21521b7a76845821aa5f1ce1a978d1c90404c073bd6310a1d

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'59c026ed7f98aff21521b7a76845821aa5f1ce1a978d1c90404c073bd6310a1d']

**Name**

23885818c2a665d5a57ba16acfe46db68258da619a8db3df8f069c0205ac648e

**Pattern Type**

stix

**Pattern**

[file:hashes:'SHA-256' =  
'23885818c2a665d5a57ba16acfe46db68258da619a8db3df8f069c0205ac648e']

**Name**

5.34.178.21

**Description**

DarkGate botnet C2 server (confidence level: 100%)

**Pattern Type**

stix

**Pattern**

[ipv4-addr:value = '5.34.178.21']

**Name**

7837e71f9bf00f48ab5336ed8647b116471561181069b79d29dbaee0e951ded7

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'7837e71f9bf00f48ab5336ed8647b116471561181069b79d29dbae0e951ded7']

**Name**

6a81b3d6606bd5c4f9d3484719ec35fc6d2dedb902a85553705a71a6e1273104

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'6a81b3d6606bd5c4f9d3484719ec35fc6d2dedb902a85553705a71a6e1273104']

**Name**

96c84918db77c8bc7d5080aca1b618f7ea7c824d27f67b2346364756f04b3226

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'96c84918db77c8bc7d5080aca1b618f7ea7c824d27f67b2346364756f04b3226']

**Name**

2bf6b1dcb11e7e32b353e0c135aca9c979177d14aa9834119cd8e4c1a5b08562

**Pattern Type**

stix

**Pattern**

[file:hashes:'SHA-256' = '2bf6b1dcb11e7e32b353e0c135aca9c979177d14aa9834119cd8e4c1a5b08562']

**Name**

149.248.0.82

**Description**

DarkGate botnet C2 server (confidence level: 100%)

**Pattern Type**

stix

**Pattern**

[ipv4-addr:value = '149.248.0.82']

**Name**

reactervnamnat.com

**Description**

DarkGate botnet C2 domain (confidence level: 100%)

**Pattern Type**

stix

**Pattern**

[domain-name:value = 'reactervnamnat.com']

**Name**

b15e4b4fcd9f0d23d902d91af9cc4e01417c426e55f6e0b4ad7256f72ac0231a

**Pattern Type**

stix

**Pattern**

[file:hashes:'SHA-256' =  
'b15e4b4fcd9f0d23d902d91af9cc4e01417c426e55f6e0b4ad7256f72ac0231a']

**Name**

2d08809875f2cfcbe4538d11ee5537768beba0b7740e1785ac35fd90d32e5c25

**Pattern Type**

stix

**Pattern**

[file:hashes:'SHA-256' =  
'2d08809875f2cfcbe4538d11ee5537768beba0b7740e1785ac35fd90d32e5c25']

**Name**

a448c4abbb2f1844a8fa0c929cd84c2f6f57a4af0442a6a4b5307af89c35cef6

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'a448c4abbb2f1844a8fa0c929cd84c2f6f57a4af0442a6a4b5307af89c35cef6']

**Name**

af85ace1fd89e4c76efdda065cc2fc44de987bfd75f9f6850610327526c97d4b

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'af85ace1fd89e4c76efdda065cc2fc44de987bfd75f9f6850610327526c97d4b']

**Name**

9a7db0204847d26515ed249f9ed577220326f63a724a2e0fb6bb1d8cd33508a3

**Description**

Cabinet\_Archive

**Pattern Type**

stix

**Pattern**



[file:hashes!'SHA-256' =  
'9a7db0204847d26515ed249f9ed577220326f63a724a2e0fb6bb1d8cd33508a3']

**Name**

xfirecovery.pro

**Description**

DarkGate botnet C2 domain (confidence level: 100%)

**Pattern Type**

stix

**Pattern**

[domain-name:value = 'xfirecovery.pro']

**Name**

07e7ce324773077d571c026405790fe61209008017e71313a3713e9d9095fc4d

**Description**

Delphi

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'07e7ce324773077d571c026405790fe61209008017e71313a3713e9d9095fc4d']

**Name**

167.114.199.65

**Description**

CC=CA ASN=AS16276 OVH SAS

**Pattern Type**

stix

**Pattern**

[ipv4-addr:value = '167.114.199.65']

**Name**

00dbb5f6bbb9c230fc0c7f7526b46d697850587b30d0b4f4d54106eb3a3d5410

**Pattern Type**

stix

**Pattern**

[file:hashes:'SHA-256' =  
'00dbb5f6bbb9c230fc0c7f7526b46d697850587b30d0b4f4d54106eb3a3d5410']

**Name**

22933b3ae7d125f312b6d1fe6356092cdcd1def6dca3ad128de65ba7986266ae

**Pattern Type**

stix

**Pattern**

[file:hashes:'SHA-256' =  
'22933b3ae7d125f312b6d1fe6356092cdcd1def6dca3ad128de65ba7986266ae']

**Name**

22d5fdd23ff4302517d5652375ee5ec3bfb28cb964015b3e9902d2398c908fd9

**Pattern Type**

stix

**Pattern**

[file:hashes:'SHA-256' =  
'22d5fdd23ff4302517d5652375ee5ec3bfb28cb964015b3e9902d2398c908fd9']

**Name**

73c0d0f220a30b541e0855e8039b8050d1332ff03c3e0c8a35671bd5eb9d30be

**Pattern Type**

stix

**Pattern**

[file:hashes:'SHA-256' =  
'73c0d0f220a30b541e0855e8039b8050d1332ff03c3e0c8a35671bd5eb9d30be']

**Name**

6bc0a512fa3d69c724c2a0aaea8f915795f9c0ef68617dbd32d3b78ee5cddc06

**Pattern Type**

stix

**Pattern**

[file:hashes:'SHA-256' =  
'6bc0a512fa3d69c724c2a0aaea8f915795f9c0ef68617dbd32d3b78ee5cddc06']

**Name**

185.8.106.231

**Description**

\*\*ISP:\*\* UAB Cherry Servers \*\*OS:\*\* Windows Server 2022 (build 10.0.20348)  
----- Hostnames: ----- Domains:  
----- Services: \*\*80:\*\* HTTP/1.1 404 Not Found Server: Microsoft-IIS/  
10.0 Date: Tue, 21 Nov 2023 18:49:20 GMT Content-Length: 0 ----- \*\*135:\*\*  
Microsoft RPC Endpoint Mapper 51a227ae-825b-41f2-b4a9-1ac9557a1018 version: v1.0  
annotation: Ngc Pop Key Service ncacn\_ip\_tcp: 185.8.106.231:49664 ncalrpc: samss lpc  
ncalrpc: SidKey Local End Point ncalrpc: protected\_storage ncalrpc: lsasspirpc ncalrpc:  
lsapolicylookup ncalrpc: LSA\_EAS\_ENDPOINT ncalrpc: LSA\_IDPEXT\_ENDPOINT ncalrpc:  
lsacap ncalrpc: LSARPC\_ENDPOINT ncalrpc: securityevent ncalrpc: audit ncacn\_np: \  
\402361\pipe\lsass 8fb74744-b2ff-4c00-be0d-9ef9a191fe1b version: v1.0 annotation: Ngc Pop  
Key Service ncacn\_ip\_tcp: 185.8.106.231:49664 ncalrpc: samss lpc ncalrpc: SidKey Local End  
Point ncalrpc: protected\_storage ncalrpc: lsasspirpc ncalrpc: lsapolicylookup ncalrpc:  
LSA\_EAS\_ENDPOINT ncalrpc: LSA\_IDPEXT\_ENDPOINT ncalrpc: lsacap ncalrpc:  
LSARPC\_ENDPOINT ncalrpc: securityevent ncalrpc: audit ncacn\_np: \\402361\pipe\lsass  
b25a52bf-e5dd-4f4a-aea6-8ca7272a0e86 version: v2.0 annotation: KeyIso ncacn\_ip\_tcp:  
185.8.106.231:49664 ncalrpc: samss lpc ncalrpc: SidKey Local End Point ncalrpc:  
protected\_storage ncalrpc: lsasspirpc ncalrpc: lsapolicylookup ncalrpc: LSA\_EAS\_ENDPOINT  
ncalrpc: LSA\_IDPEXT\_ENDPOINT ncalrpc: lsacap ncalrpc: LSARPC\_ENDPOINT ncalrpc:  
securityevent ncalrpc: audit ncacn\_np: \\402361\pipe\lsass 12345778-1234-abcd-  
ef00-0123456789ac version: v1.0 protocol: [MS-SAMR]: Security Account Manager (SAM)  
Remote Protocol provider: samsrv.dll ncacn\_ip\_tcp: 185.8.106.231:49664 ncalrpc: samss lpc  
ncalrpc: SidKey Local End Point ncalrpc: protected\_storage ncalrpc: lsasspirpc ncalrpc:

lsapolicylookup ncalrpc: LSA\_EAS\_ENDPOINT ncalrpc: LSA\_IDPEXT\_ENDPOINT ncalrpc:  
lsacap ncalrpc: LSARPC\_ENDPOINT ncalrpc: securityevent ncalrpc: audit ncacn\_np: \  
\\402361\pipe\lsass d95afe70-a6d5-4259-822e-2c84da1ddb0d version: v1.0 protocol: [MS-  
RSP]: Remote Shutdown Protocol provider: wininit.exe ncacn\_ip\_tcp: 185.8.106.231:49665  
ncalrpc: WindowsShutdown ncacn\_np: \\402361\PIPE\InitShutdown ncalrpc:  
WMsgKRpc0DD660 76f226c3-ec14-4325-8a99-6a46348418af version: v1.0 provider:  
winlogon.exe ncalrpc: WindowsShutdown ncacn\_np: \\402361\PIPE\InitShutdown ncalrpc:  
WMsgKRpc0DD660 ncalrpc: WMsgKRpc0DFF01 ncalrpc: WMsgKRpc05ED022  
fc48cd89-98d6-4628-9839-86f7a3e4161a version: v1.0 ncalrpc: dabrpc ncalrpc: csebsub  
ncalrpc: LRPC-2d8e3c9a6e05b96825 ncalrpc: LRPC-cfa43cbde63d37c8e0 ncalrpc: LRPC-  
a73a92a59b6f4b9c26 ncalrpc: LRPC-21f4c140d89da09cb9 ncalrpc: LRPC-85155c6c24703e46c6  
ncalrpc: OLE98F3E390ED4E7DF270AE7499CDD2 ncalrpc: actkernel ncalrpc: umpo  
d09bdeb5-6171-4a34-bfe2-06fa82652568 version: v1.0 ncalrpc: csebsub ncalrpc:  
LRPC-2d8e3c9a6e05b96825 ncalrpc: LRPC-cfa43cbde63d37c8e0 ncalrpc: LRPC-  
a73a92a59b6f4b9c26 ncalrpc: LRPC-21f4c140d89da09cb9 ncalrpc: LRPC-85155c6c24703e46c6  
ncalrpc: OLE98F3E390ED4E7DF270AE7499CDD2 ncalrpc: actkernel ncalrpc: umpo ncalrpc:  
LRPC-cfa43cbde63d37c8e0 ncalrpc: LRPC-a73a92a59b6f4b9c26 ncalrpc:  
LRPC-21f4c140d89da09cb9 ncalrpc: LRPC-85155c6c24703e46c6 ncalrpc:  
OLE98F3E390ED4E7DF270AE7499CDD2 ncalrpc: actkernel ncalrpc: umpo ncalrpc: LRPC-  
a73a92a59b6f4b9c26 ncalrpc: LRPC-21f4c140d89da09cb9 ncalrpc: LRPC-85155c6c24703e46c6  
ncalrpc: OLE98F3E390ED4E7DF270AE7499CDD2 ncalrpc: actkernel ncalrpc: umpo ncalrpc:  
LRPC-32b96ae0f59d4f474a ncalrpc: LRPC-6e576ac62d71f2fb56 697dcda9-3ba9-4eb2-9247-  
e11f1901b0d2 version: v1.0 ncalrpc: LRPC-2d8e3c9a6e05b96825 ncalrpc: LRPC-  
cfa43cbde63d37c8e0 ncalrpc: LRPC-a73a92a59b6f4b9c26 ncalrpc: LRPC-21f4c140d89da09cb9  
ncalrpc: LRPC-85155c6c24703e46c6 ncalrpc: OLE98F3E390ED4E7DF270AE7499CDD2 ncalrpc:  
actkernel ncalrpc: umpo 9b008953-f195-4bf9-bde0-4471971e58ed version: v1.0 ncalrpc:  
LRPC-cfa43cbde63d37c8e0 ncalrpc: LRPC-a73a92a59b6f4b9c26 ncalrpc:  
LRPC-21f4c140d89da09cb9 ncalrpc: LRPC-85155c6c24703e46c6 ncalrpc:  
OLE98F3E390ED4E7DF270AE7499CDD2 ncalrpc: actkernel ncalrpc: umpo 0d47017b-  
b33b-46ad-9e18-fe96456c5078 version: v1.0 ncalrpc: umpo 95406f0b-b239-4318-91bb-  
cea3a46ff0dc version: v1.0 ncalrpc: umpo 4ed8abcc-f1e2-438b-981f-bb0e8abc010c version:  
v1.0 ncalrpc: umpo 0ff1f646-13bb-400a-ab50-9a78f2b7a85a version: v1.0 ncalrpc: umpo  
6982a06e-5fe2-46b1-b39c-a2c545bfa069 version: v1.0 ncalrpc: umpo 082a3471-31b6-422a-  
b931-a54401960c62 version: v1.0 ncalrpc: umpo fae436b0-b864-4a87-9eda-298547cd82f2  
version: v1.0 ncalrpc: umpo e53d94ca-7464-4839-b044-09a2fb8b3ae5 version: v1.0 ncalrpc:  
umpo 178d84be-9291-4994-82c6-3f909aca5a03 version: v1.0 ncalrpc: umpo 4dace966-  
a243-4450-ae3f-9b7bcb5315b8 version: v2.0 ncalrpc: umpo 1832bcf6-cab8-41d4-85d2-  
c9410764f75a version: v1.0 ncalrpc: umpo c521facf-09a9-42c5-b155-72388595cbf0 version:  
v0.0 ncalrpc: umpo 2c7fd9ce-e706-4b40-b412-953107ef9bb0 version: v0.0 ncalrpc: umpo  
88abcbc3-34ea-76ae-8215-767520655a23 version: v0.0 ncalrpc: LRPC-21f4c140d89da09cb9  
ncalrpc: LRPC-85155c6c24703e46c6 ncalrpc: OLE98F3E390ED4E7DF270AE7499CDD2 ncalrpc:  
actkernel ncalrpc: umpo 76c217bc-c8b4-4201-a745-373ad9032b1a version: v1.0 ncalrpc:  
LRPC-21f4c140d89da09cb9 ncalrpc: LRPC-85155c6c24703e46c6 ncalrpc:  
OLE98F3E390ED4E7DF270AE7499CDD2 ncalrpc: actkernel ncalrpc: umpo

55e6b932-1979-45d6-90c5-7f6270724112 version: v1.0 ncalrpc: LRPC-21f4c140d89da09cb9  
ncalrpc: LRPC-85155c6c24703e46c6 ncalrpc: OLE98F3E390ED4E7DF270AE7499CDD2 ncalrpc:  
actkernel ncalrpc: umpo 857fb1be-084f-4fb5-b59c-4b2c4be5f0cf version: v1.0 ncalrpc:  
LRPC-85155c6c24703e46c6 ncalrpc: OLE98F3E390ED4E7DF270AE7499CDD2 ncalrpc: actkernel  
ncalrpc: umpo 20c40295-8dba-48e6-aebf-3e78ef3bb144 version: v2.0 ncalrpc:  
LRPC-85155c6c24703e46c6 ncalrpc: OLE98F3E390ED4E7DF270AE7499CDD2 ncalrpc: actkernel  
ncalrpc: umpo 2513bcbe-6cd4-4348-855e-7efb3c336dd3 version: v2.0 ncalrpc:  
LRPC-85155c6c24703e46c6 ncalrpc: OLE98F3E390ED4E7DF270AE7499CDD2 ncalrpc: actkernel  
ncalrpc: umpo 0d3e2735-cea0-4ecc-a9e2-41a2d81aed4e version: v1.0 ncalrpc:  
LRPC-85155c6c24703e46c6 ncalrpc: OLE98F3E390ED4E7DF270AE7499CDD2 ncalrpc: actkernel  
ncalrpc: umpo c605f9fb-f0a3-4e2a-a073-73560f8d9e3e version: v1.0 ncalrpc:  
LRPC-85155c6c24703e46c6 ncalrpc: OLE98F3E390ED4E7DF270AE7499CDD2 ncalrpc: actkernel  
ncalrpc: umpo 1b37ca91-76b1-4f5e-a3c7-2abfc61f2bb0 version: v1.0 ncalrpc:  
LRPC-85155c6c24703e46c6 ncalrpc: OLE98F3E390ED4E7DF270AE7499CDD2 ncalrpc: actkernel  
ncalrpc: umpo 8bfc3be1-6def-4e2d-af74-7c47cd0ade4a version: v1.0 ncalrpc:  
LRPC-85155c6c24703e46c6 ncalrpc: OLE98F3E390ED4E7DF270AE7499CDD2 ncalrpc: actkernel  
ncalrpc: umpo 2d98a740-581d-41b9-aa0d-a88b9d5ce938 version: v1.0 ncalrpc:  
LRPC-85155c6c24703e46c6 ncalrpc: OLE98F3E390ED4E7DF270AE7499CDD2 ncalrpc: actkernel  
ncalrpc: umpo dd59071b-3215-4c59-8481-972edadc0f6a version: v1.0 ncalrpc:  
OLE98F3E390ED4E7DF270AE7499CDD2 ncalrpc: actkernel ncalrpc: umpo  
0361ae94-0316-4c6c-8ad8-c594375800e2 version: v1.0 ncalrpc: umpo 5824833b-3c1a-4ad2-  
bdfd-c31d19e23ed2 version: v1.0 ncalrpc: umpo bdaa0970-413b-4a3e-9e5d-f6dc9d7e0760  
version: v1.0 ncalrpc: umpo 3b338d89-6cfa-44b8-847e-531531bc9992 version: v1.0 ncalrpc:  
umpo 8782d3b9-ebbd-4644-a3d8-e8725381919b version: v1.0 ncalrpc: umpo 085b0334-  
e454-4d91-9b8c-4134f9e793f3 version: v1.0 ncalrpc: umpo 4bec6bb8-b5c2-4b6f-  
b2c1-5da5cf92d0d9 version: v1.0 ncalrpc: umpo c9ac6db5-82b7-4e55-ae8a-e464ed7b4277  
version: v1.0 annotation: Impl friendly name provider: sysntfy.dll ncalrpc:  
LRPC-8bf202166d39e8ccc0 ncalrpc: IUserProfile2 ncalrpc: LRPC-add7f540430a4f45eb ncalrpc:  
LRPC-1983125202d16c35db ncalrpc: senssvc ncalrpc: LRPC-523e7b293f0210097a f3f09ffd-  
fbcf-4291-944d-70ad6e0e73bb version: v1.0 ncalrpc: LRPC-cc924a9c9484797c4a ncalrpc:  
LRPC-8fd3803e2887f9f36a e40f7b57-7a25-4cd3-a135-7f7d3df9d16b version: v1.0 ncalrpc:  
LRPC-a9236b8f6f6d05af0e 880fd55e-43b9-11e0-b1a8-cf4edfd72085 version: v1.0 annotation:  
KAPI Service endpoint ncalrpc: LRPC-62594d1a8f2ef571ca ncalrpc:  
OLE1D36DEA986ED7637E6CC9D669794 ncalrpc: LRPC-32b96ae0f59d4f474a 5222821f-  
d5e2-4885-84f1-5f6185a0ec41 version: v1.0 ncalrpc: LRPC-947c337d7d755d24eb  
a500d4c6-0dd1-4543-bc0c-d5f93486eaf8 version: v1.0 ncalrpc: LRPC-7f3dd550e8efb25779  
ncalrpc: LRPC-6e576ac62d71f2fb56 7ea70bcf-48af-4f6a-8968-6a440754d5fa version: v1.0  
annotation: NSI server endpoint provider: nsisvc.dll ncalrpc: LRPC-18eb14928d13897f4c  
30adc50c-5cbc-46ce-9a0e-91914789e23c version: v1.0 annotation: NRP server endpoint  
provider: nrpsrv.dll ncalrpc: LRPC-56990264b5a55cc209 ncalrpc: DNSResolver  
f6beaff7-1e19-4fbb-9f8f-b89e2018337c version: v1.0 annotation: Event log TCPIP protocol:  
[MS-EVEN6]: EventLog Remoting Protocol provider: wevtvc.dll ncalrpc: ncacn\_ip\_tcp:  
185.8.106.231:49666 ncacn\_np: \\402361\pipe\eventlog ncalrpc: eventlog 3c4728c5-  
f0ab-448b-bda1-6ce01eb0a6d6 version: v1.0 annotation: DHCPv6 Client LRPC Endpoint

provider: dhcpcsvc6.dll ncalrpc: dhcpcsvc6 ncalrpc: dhcpcsvc 3c4728c5-f0ab-448b-bda1-6ce01eb0a6d5 version: v1.0 annotation: DHCP Client LRPC Endpoint provider: dhcpcsvc.dll ncalrpc: dhcpcsvc 2eb08e3e-639f-4fba-97b1-14f878961076 version: v1.0 annotation: Group Policy RPC Interface provider: gpsvc.dll ncalrpc: LRPC-67ef270bbd68cdffff30b044a5-a225-43f0-b3a4-e060df91f9c1 version: v1.0 provider: certprop.dll ncalrpc: LRPC-6ef3d1c82191cfc2f1 3a9ef155-691d-4449-8d05-09ad57031823 version: v1.0 ncacn\_ip\_tcp: 185.8.106.231:49667 ncalrpc: LRPC-443a2764cf6a7250e7 ncalrpc: ubpmtaskhostchannel ncacn\_np: \\402361\PIPE\atsvc ncalrpc: LRPC-f3ead2c15c808e33c3 86d35949-83c9-4044-b424-db363231fd0c version: v1.0 protocol: [MS-TSCH]: Task Scheduler Service Remoting Protocol provider: schedsvc.dll ncacn\_ip\_tcp: 185.8.106.231:49667 ncalrpc: LRPC-443a2764cf6a7250e7 ncalrpc: ubpmtaskhostchannel ncacn\_np: \\402361\PIPE\atsvc ncalrpc: LRPC-f3ead2c15c808e33c3 33d84484-3626-47ee-8c6f-e7e98b113be1 version: v2.0 ncalrpc: LRPC-443a2764cf6a7250e7 ncalrpc: ubpmtaskhostchannel ncacn\_np: \\402361\PIPE\atsvc ncalrpc: LRPC-f3ead2c15c808e33c3 378e52b0-c0a9-11cf-822d-00aa0051e40f version: v1.0 protocol: [MS-TSCH]: Task Scheduler Service Remoting Protocol provider: taskcomp.dll ncacn\_np: \\402361\PIPE\atsvc ncalrpc: LRPC-f3ead2c15c808e33c3 1ff70682-0a51-30e8-076d-740be8cee98b version: v1.0 protocol: [MS-TSCH]: Task Scheduler Service Remoting Protocol provider: taskcomp.dll ncacn\_np: \\402361\PIPE\atsvc ncalrpc: LRPC-f3ead2c15c808e33c3 0a74ef1c-41a4-4e06-83ae-dc74fb1cdd53 version: v1.0 provider: schedsvc.dll ncalrpc: LRPC-f3ead2c15c808e33c3 509bc7ae-77be-4ee8-b07c-0d096bb44345 version: v1.0 ncalrpc: LRPC-ad00b265bf4be4d7f4 ncalrpc: OLE6C44BDF144DEF31428AB0DB80D1E 3f787932-3452-4363-8651-6ea97bb373bb version: v1.0 annotation: NSP Rpc Interface ncalrpc: LRPC-9684af15085ba2f7f7 ncalrpc: OLEC1BCF10C5D76C15297D61B6F494E 7f1343fe-50a9-4927-a778-0c5859517bac version: v1.0 annotation: DfsDs service ncacn\_np: \\402361\PIPE\wkssvc ncalrpc: LRPC-bff0f1d900b646fb02 eb081a0d-10ee-478a-a1dd-50995283e7a8 version: v3.0 annotation: Witness Client Test Interface ncalrpc: LRPC-bff0f1d900b646fb02 f2c9b409-c1c9-4100-8639-d8ab1486694a version: v1.0 annotation: Witness Client Upcall Server ncalrpc: LRPC-bff0f1d900b646fb02 29770a8f-829b-4158-90a2-78cd488501f7 version: v1.0 ncacn\_ip\_tcp: 185.8.106.231:49668 ncacn\_np: \\402361\pipe\SessEnvPublicRpc ncalrpc: SessEnvPrivateRpc ncalrpc: LRPC-523e7b293f0210097a 13560fa9-8c09-4b56-a1fd-04d083b9b2a1 version: v1.0 ncalrpc: LRPC-7d69fc07dc7921e3d6 ncalrpc: OLE78D11F70AABEA68C2F28366A4C65 c2d1b5dd-fa81-4460-9dd6-e7658b85454b version: v1.0 ncalrpc: LRPC-7d69fc07dc7921e3d6 ncalrpc: OLE78D11F70AABEA68C2F28366A4C65 f44e62af-dab1-44c2-8013-049a9de417d6 version: v1.0 ncalrpc: LRPC-7d69fc07dc7921e3d6 ncalrpc: OLE78D11F70AABEA68C2F28366A4C65 b37f900a-eae4-4304-a2ab-12bb668c0188 version: v1.0 ncalrpc: LRPC-7d69fc07dc7921e3d6 ncalrpc: OLE78D11F70AABEA68C2F28366A4C65 abfb6ca3-0c5e-4734-9285-0aee72fe8d1c version: v1.0 ncalrpc: LRPC-7d69fc07dc7921e3d6 ncalrpc: OLE78D11F70AABEA68C2F28366A4C65 0d3c7f20-1c8d-4654-a1b3-51563b298bda version: v1.0 annotation: UserMgrCli ncalrpc: LRPC-f94930b93359f47853 ncalrpc: OLE78D11F70AABEA68C2F28366A4C65 b18fbab6-56f8-4702-84e0-41053293a869 version: v1.0 annotation: UserMgrCli ncalrpc: LRPC-f94930b93359f47853 ncalrpc: OLE78D11F70AABEA68C2F28366A4C65 2fb92682-6599-42dc-ae13-bd2ca89bd11c version: v1.0 annotation: Fw APIs provider: MPSSVC.dll ncalrpc: LRPC-93810c2a3c6bb10b51 ncalrpc: LRPC-e86475b6d206ce6c12 ncalrpc:





ncalrpc: LRPC-dc279a96837d4afadf ncalrpc: OLED0F6ECC48A2AA11B20118B08E110  
0767a036-0d22-48aa-ba69-b619480f38cb version: v1.0 annotation: PcaSvc provider:  
pcasvc.dll ncalrpc: LRPC-0e3c90a9011ca0e82d 58e604e8-9adb-4d2e-a464-3b0683fb1480  
version: v1.0 annotation: AppInfo provider: appinfo.dll ncalrpc: LRPC-1d252c5f97971258d8  
fd7a0523-dc70-43dd-9b2e-9c5ed48225b1 version: v1.0 annotation: AppInfo provider:  
appinfo.dll ncalrpc: LRPC-1d252c5f97971258d8 5f54ce7d-5b79-4175-8584-cb65313a0e98  
version: v1.0 annotation: AppInfo provider: appinfo.dll ncalrpc: LRPC-1d252c5f97971258d8  
201ef99a-7fa0-444c-9399-19ba84f12a1a version: v1.0 annotation: AppInfo provider:  
appinfo.dll ncalrpc: LRPC-1d252c5f97971258d8 0497b57d-2e66-424f-a0c6-157cd5d41700  
version: v1.0 annotation: AppInfo ncalrpc: LRPC-1d252c5f97971258d8 906b0ce0-c70b-1067-  
b317-00dd010662da version: v1.0 protocol: [MS-CMPO]: MSDTC Connection Manager:  
provider: msdtcprx.dll ncalrpc: LRPC-23271354176030a4ed ncalrpc: LRPC-23271354176030a4ed  
ncalrpc: LRPC-23271354176030a4ed d249bd56-4cc0-4fd3-8ce6-6fe050d590cb version: v0.0  
ncalrpc: LRPC-9ce541f0942280bc2f d8140e00-5c46-4ae6-80ac-2f9a76df224c version: v0.0  
ncalrpc: LRPC-9ce541f0942280bc2f a4b8d482-80ce-40d6-934d-b22a01a44fe7 version: v1.0  
annotation: LicenseManager ncalrpc: LicenseServiceEndpoint bf4dc912-  
e52f-4904-8ebe-9317c1bdd497 version: v1.0 ncalrpc: LRPC-f4b48e002cf7adbfc3 ncalrpc:  
OLE1434030A9955084D57456BC25EC1 0dd94748-2ff1-11ee-be56-0242ac120002 version: v2.0  
ncalrpc: LRPC-0e1a2a1ab9c5a5a684 ncalrpc: OLE41A1E5BBBA86978EAC44D39E7FEE 8c7daf44-  
b6dc-11d1-9a4c-0020af6e7c57 version: v1.0 annotation: Group Policy RPC Interface provider:  
appmgmts.dll ncalrpc: LRPC-a183b9dc09fd35861b 98cd761e-e77d-41c8-a3c0-0fb756d90ec2  
version: v1.0 ncalrpc: LRPC-9d6136efbfe93393a7 ncalrpc:  
OLEB59BBB3ADE453D243265CD726FB4 d22895ef-aff4-42c5-a5b2-b14466d34ab4 version: v1.0  
ncalrpc: LRPC-9d6136efbfe93393a7 ncalrpc: OLEB59BBB3ADE453D243265CD726FB4  
e38f5360-8572-473e-b696-1b46873beeab version: v1.0 ncalrpc: LRPC-9d6136efbfe93393a7  
ncalrpc: OLEB59BBB3ADE453D243265CD726FB4 95095ec8-32ea-4eb0-a3e2-041f97b36168  
version: v1.0 ncalrpc: LRPC-9d6136efbfe93393a7 ncalrpc:  
OLEB59BBB3ADE453D243265CD726FB4 fd8be72b-a9cd-4b2c-a9ca-4ded242fbe4d version: v1.0  
ncalrpc: LRPC-9d6136efbfe93393a7 ncalrpc: OLEB59BBB3ADE453D243265CD726FB4 4c9dbf19-  
d39e-4bb9-90ee-8f7179b20283 version: v1.0 ncalrpc: LRPC-9d6136efbfe93393a7 ncalrpc:  
OLEB59BBB3ADE453D243265CD726FB4 d4051bde-9cdd-4910-b393-4aa85ec3c482 version: v1.0  
ncalrpc: LRPC-9d6136efbfe93393a7 ncalrpc: OLEB59BBB3ADE453D243265CD726FB4 7df1ceae-  
de4e-4e6f-ab14-49636e7c2052 version: v1.0 ncalrpc: LRPC-f65a8a44d986a58fc7  
3473dd4d-2e88-4006-9cba-22570909dd10 version: v5.256 annotation: WinHttp Auto-Proxy  
Service ncalrpc: 84c5d621-4341-4ffe-b36f-c12e4d60abe7 ncalrpc: LRPC-c2cb0a47a514fde730  
a111f1c5-5923-47c0-9a68-d0bafb577901 version: v1.0 annotation: NetSetup API ncalrpc:  
LRPC-7e7ee53bcf4d8f1a59 ~~~ ----- \*\*137:\*\* ~~~ NetBIOS Response: Server Name:  
402361 MAC Address: AC:1F:6B:3A:B9:4E Names: 402361 <0x20> 402361 <0x0> WORKGROUP  
<0x0> Additional Interfaces: 192.168.137.1 192.168.209.1 32.168.61.7 ~~~ ----- \*\*139:\*\*  
~~~ \x83\x00\x00\x01\x8f ~~~ ----- \*\*445:\*\* ~~~ SMB Status: Authentication:  
enabled SMB Version: 2 Capabilities: raw-mode ~~~ ----- \*\*902:\*\* ~~~ 220 VMware  
Authentication Daemon Version 1.10: SSL Required, ServerDaemonProtocol:SOAP,  
MKSSDisplayProtocol:VNC , , NfCSSL supported/t, ~~~ ----- \*\*3389:\*\* ~~~ Remote  
Desktop Protocol

```
\x03\x00\x00\x13\x0e\xd0\x00\x00\x124\x00\x02\x1f\x08\x00\x02\x00\x00\x00 Remote
Desktop Protocol NTLM Info: OS: Windows Server 2022 OS Build: 10.0.20348 Target Name:
402361 NetBIOS Domain Name: 402361 NetBIOS Computer Name: 402361 DNS Domain
Name: s402361 FQDN: s402361 ~~~ ----- **5985:**~ HTTP/1.1 404 Not Found
Content-Type: text/html; charset=us-ascii Server: Microsoft-HTTPAPI/2.0 Date: Thu, 23 Nov
2023 06:32:58 GMT Connection: close Content-Length: 315 WinRM NTLM Info: OS: Windows
Server 2022 OS Build: 10.0.20348 Target Name: 402361 NetBIOS Domain Name: 402361
NetBIOS Computer Name: 402361 DNS Domain Name: s402361 FQDN: s402361 ~~~
----- **5986:**~ HTTP/1.1 404 Not Found Content-Type: text/html; charset=us-
ascii Server: Microsoft-HTTPAPI/2.0 Date: Mon, 20 Nov 2023 21:21:04 GMT Connection: close
Content-Length: 315 WinRM NTLM Info: OS: Windows Server 2022 OS Build: 10.0.20348 Target
Name: 402361 NetBIOS Domain Name: 402361 NetBIOS Computer Name: 402361 DNS
Domain Name: s402361 FQDN: s402361 ~~~ HEARTBLEED: 2023/11/20 21:21:11 185.8.106.231:5986
- ERROR: write tcp 185.8.106.231:5986: broken pipe -----
```

**Pattern Type**

stix

**Pattern**

[ipv4-addr:value = '185.8.106.231']

**Name**

f1fa42c3d50d4468b9ac3f7e5cdb1160c8f7ed7bbb6e4017859b837dac7e8d93

**Pattern Type**

stix

**Pattern**

[file:hashes:'SHA-256' =  
'f1fa42c3d50d4468b9ac3f7e5cdb1160c8f7ed7bbb6e4017859b837dac7e8d93']

**Name**

284458ee75b1d1c2f07ad9fe3a811589360c23092852b2b80a67d2e25e06b269

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'284458ee75b1d1c2f07ad9fe3a811589360c23092852b2b80a67d2e25e06b269']

**Name**

975d1510380171076b122cd556a1a05bd1eca33b98a9fd003fb3662cb8c83571

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'975d1510380171076b122cd556a1a05bd1eca33b98a9fd003fb3662cb8c83571']

**Name**

8ff356af97443bd2b028eb57f160a92c2a1ecab2d227977a87a221ae6409c4be

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'8ff356af97443bd2b028eb57f160a92c2a1ecab2d227977a87a221ae6409c4be']

**Name**

965f2a99685f9777da6c5d21cd4654357e34c7abd7c0c8190c19815d21d9be29

**Description**

Delphi

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'965f2a99685f9777da6c5d21cd4654357e34c7abd7c0c8190c19815d21d9be29']

**Name**

positivereview.cloud

**Description**

DarkGate botnet C2 domain (confidence level: 100%)

**Pattern Type**

stix

**Pattern**

[domain-name:value = 'positivereview.cloud']

**Name**

da27475894815900fefb9d383de0d255bfa3b7a22927b2912a2d614742b3109c

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'da27475894815900fefb9d383de0d255bfa3b7a22927b2912a2d614742b3109c']

**Name**

9b9514d5af8a9c92e7596dc15aadba0defaed9f08ec50a588279aa6f6b8ea80

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'9b9514d5af8a9c92e7596dc15aadba0defaed9f08ec50a588279aa6f6b8ea80']

**Name**

a63bce69103155accf3c836e7bedf155bee789276624def8713a4431d6562883

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'a63bce69103155accf3c836e7bedf155bee789276624def8713a4431d6562883']

**Name**

b68736ce13dd44a60e7c462b4f451a4132187a0b76adf9cc201a1468379e7601

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'b68736ce13dd44a60e7c462b4f451a4132187a0b76adf9cc201a1468379e7601']

**Name**

70e79ddbcc5bb1f9d40133e4f3dbcea6362794854d47b6a2081f1439ff795dcd

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'70e79ddbcc5bb1f9d40133e4f3dbcea6362794854d47b6a2081f1439ff795dcd']

**Name**

6610e152e07225c91a723f3b65e33af4b0df0d816dd69fe73f9d25dc0fc975d4

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'6610e152e07225c91a723f3b65e33af4b0df0d816dd69fe73f9d25dc0fc975d4']

**Name**

2d8f91bb2359c13abf0ff31af101fc6ecb39849350fbfde015b549e97c8877d5

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'2d8f91bb2359c13abf0ff31af101fc6ecb39849350fbfde015b549e97c8877d5']

**Name**

7999c9ba66c57b8f2932f54db723feef411295f8ed6a6d403376278153745c6

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'7999c9ba66c57b8f2932f54db723feef411295f8ed6a6d403376278153745c6']

**Name**

a3fc0ef279b5717d0b0dcbe25f8e543efee252cc116336a744968279ce9d3c29

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'a3fc0ef279b5717d0b0dcbe25f8e543efee252cc116336a744968279ce9d3c29']

**Name**

10bfaeb0c00425c4749140d5c7d9f3d88537cf2f621ba7af5322b15cf205b896

**Description**

VirTool:Win32/DelfInject.gen!CP

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'10bfaeb0c00425c4749140d5c7d9f3d88537cf2f621ba7af5322b15cf205b896']

**Name**

7d2c98c8d667891c33119d314d1945c285e2a28701970532f6272cad91f59028

**Pattern Type**

stix



**Pattern**

[file:hashes!'SHA-256' =  
'7d2c98c8d667891c33119d314d1945c285e2a28701970532f6272cad91f59028']

**Name**

ffa5abebf578cfc2200b4856889e397e412e56c5bff0032d2d7565d9286685f

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'ffa5abebf578cfc2200b4856889e397e412e56c5bff0032d2d7565d9286685f']

**Name**

394ee7c88a0925698ce1a2e0268ca49404591eb5cdd961d657d785993212cd86

**Description**

Cabinet\_Archive

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'394ee7c88a0925698ce1a2e0268ca49404591eb5cdd961d657d785993212cd86']

**Name**

8b7f551954d4f474b4265aa56b5ad93c7a0d08774ecfd25c2d6b63dfb9052889

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'8b7f551954d4f474b4265aa56b5ad93c7a0d08774ecfd25c2d6b63dfb9052889']

**Name**

d2b24a51e7e12fded160344bbac9ee1a9082b690d0c6f326170ea8a224038215

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'd2b24a51e7e12fded160344bbac9ee1a9082b690d0c6f326170ea8a224038215']

**Name**

2f342c83cc564e0110f2c0a32a3259f0ef624cd47c50d82000b308411a402c17

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'2f342c83cc564e0110f2c0a32a3259f0ef624cd47c50d82000b308411a402c17']

**Name**

5b608a6729343cf8b6752d5bb201f906920fcb472f5949e04173b907f65ceff1

**Description**

W32/Injector

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'5b608a6729343cf8b6752d5bb201f906920fcb472f5949e04173b907f65ceff1']

**Name**

063ea8cd25e166182ef68ab1b1157e6448caccaa89cf0f0166c08c21501bf273

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'063ea8cd25e166182ef68ab1b1157e6448caccaa89cf0f0166c08c21501bf273']

**Name**

3a543dbe70ef5fc78e2fd8b2752e36892f705fc56c54837e248611941dea49c1

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'3a543dbe70ef5fc78e2fd8b2752e36892f705fc56c54837e248611941dea49c1']

**Name**

74f21cf5ab72aad0f7f3cf3274a167c20e787f9513019510561f39d4230f3c4b

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'74f21cf5ab72aad0f7f3cf3274a167c20e787f9513019510561f39d4230f3c4b']

**Name**

179.60.149.3

**Description**

DarkGate botnet C2 server (confidence level: 100%)

**Pattern Type**

stix

**Pattern**

[ipv4-addr:value = '179.60.149.3']

**Name**

bb37b05a34b2547941efdceee54ec8745e2ce7a7d5d0968c3b5c10274dc81880

**Pattern Type**

stix

**Pattern**

[file:hashes:'SHA-256' =  
'bb37b05a34b2547941efdceee54ec8745e2ce7a7d5d0968c3b5c10274dc81880']

**Name**

e7b76e11101e35c46a7199851f82c69e819a3d856f6f68fa3af0636c3efde0ca

**Description**

PUA\_Crypto\_Mining\_CommandLine\_Indicators\_Oct21

**Pattern Type**

stix

**Pattern**

[file:hashes:'SHA-256' =  
'e7b76e11101e35c46a7199851f82c69e819a3d856f6f68fa3af0636c3efde0ca']

**Name**

bc80b13b639ee4b4a6a79555cb4daf3ec360682322ffae68c1272b5aed8b1593

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'bc80b13b639ee4b4a6a79555cb4daf3ec360682322ffae68c1272b5aed8b1593']

**Name**

185.39.18.170

**Description**

CC=NL ASN=AS62005 BlueVPS OU

**Pattern Type**

stix

**Pattern**

[ipv4-addr:value = '185.39.18.170']

**Name**

naserviceebaysmman.shop

**Description**

DarkGate botnet C2 domain (confidence level: 100%)

**Pattern Type**

stix

**Pattern**

[domain-name:value = 'naserviceebaysmman.shop']

**Name**

sanibroadbandcommunicton.duckdns.org

**Pattern Type**

stix

**Pattern**

[hostname:value = 'sanibroadbandcommunicton.duckdns.org']

**Name**

7c6fa5cec54bc8afa51376db19c9c83d7c17f6e21ce761bfb1daeb7ad31d898d

**Pattern Type**

stix

**Pattern**

[file:hashes!'SHA-256' =  
'7c6fa5cec54bc8afa51376db19c9c83d7c17f6e21ce761bfb1daeb7ad31d898d']

**Name**

private-edinmarketing.com

**Pattern Type**

stix

**Pattern**

[domain-name:value = 'private-edinmarketing.com']

**Name**

6e068b9dcd8df03fd6456faeb4293c036b91a130a18f86a945c8964a576c1c70

**Description**

Cabinet\_Archive

**Pattern Type**

stix

**Pattern**

[file:hashes:'SHA-256' =  
'6e068b9dcd8df03fd6456faeb4293c036b91a130a18f86a945c8964a576c1c70']

**Name**

1da4bf9ef73b820612e493877ccd3dd065763d161d03586e189b21732fe09db4

**Pattern Type**

stix



**Pattern**

```
[file:hashes:'SHA-256' =  
'1da4bf9ef73b820612e493877ccd3dd065763d161d03586e189b21732fe09db4']
```

# Intrusion-Set

| Name     |
|----------|
| DarkGate |

# Malware

## Name

DarkGate

# Domain-Name

**Value**

reactervnamnat.com

bikeontop.shop

private-edinmarketing.com

msteamseyeappstore.com

drkgatevservicceoffice.net

positivereview.cloud

xfirecovery.pro

naserviceebaysmman.shop

# StixFile

## Value

bc80b13b639ee4b4a6a79555cb4daf3ec360682322ffae68c1272b5aed8b1593

2b24c4c883a562d0326846ee1c92840144d1d755cdb721b24a35038ea92aa0e4

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00985db874d9177de4a18999f7a420260b3a4665ba2b5b32aa39433ef79819df

# Hostname

## Value

sanibroadbandcommunicton.duckdns.org

# IPv4-Addr

## Value

80.66.88.145

5.34.178.21

89.248.193.66

45.89.65.198

5.188.87.58

167.114.199.65

185.39.18.170

149.248.0.82

179.60.149.3

107.181.161.200

185.8.106.231

# External References

- 
- <https://otx.alienvault.com/pulse/6560841a3ac666c2f0862496>