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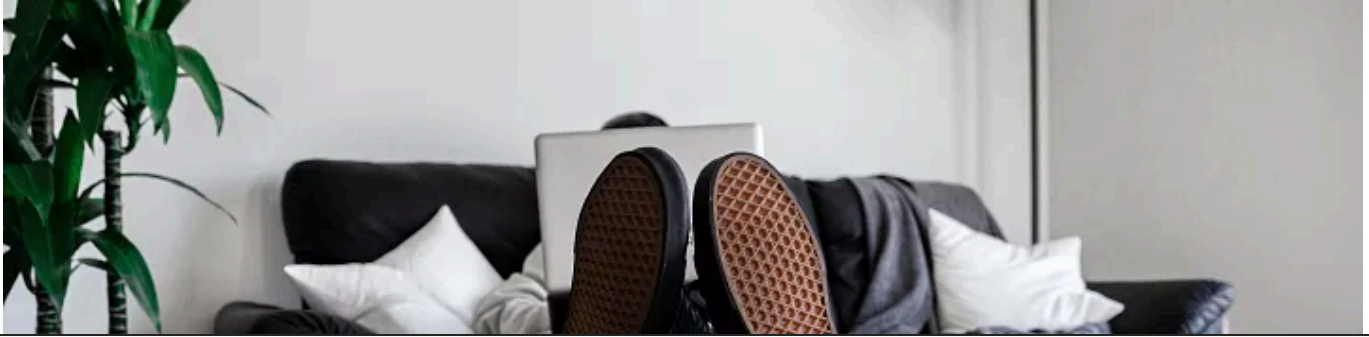
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In this article we'll take a close look at the techniques described by Trellix researchers Mathanraj Thangaraju and Sijo Jacob in their recent piece for the Trellix blog entitled *Beyond File Search: A Novel Method for Exploiting the “search-ms” URI Protocol Handler*. In this post, Thangaraju and Jacob explore a recent campaign where threat actors exploit built-in Windows search capabilities in conjunction with WebDAV to trick unwitting victims into executing malware on their systems. The team at Trellix always delivers top-notch work and I appreciate how well they explain attacks like the one covered here.

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# A Valuable Focus on Initial Access Detection

As detection specialists, we have seen lots of different methods by which attackers breach our systems. The philosophy of “assume breach” is a powerful guiding force in our work, and we are rightly accustomed to working hand-in-hand with our incident responder colleagues to address the post-compromise activity that we find.

But, think about how much headache, time, and money could be saved by catching more cyberattacks early — at the Initial Access phase or shortly

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**Note:** According to the Trellix researchers, the WebDAV/search-ms techniques described here serve as an initial access vector for AsyncRAT and RemcosRAT. I believe them: my goal here is only to better understand the *delivery* mechanism, and not necessarily to perform a comprehensive, deep-dive analysis of the malware itself!

## Understanding the Threat

As the Trellix researchers show, the attack is a classic phish, but using a compromised or malicious web server to give the victim a view of the

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cybersecurity, and I had worked with computers since 2010! If you are new to WebDAV, you can learn all you need to know about it [here](#).

2. The **search-ms protocol** is simply a means by which you can query the “Windows Search index” using a URI. This sounds fancy, but all it means is that search-ms provides a means to query the contents of files and folders using a component of a URL. In the case of this threat, that URL will be searching for specifically-named content on a malicious WebDAV server. There’s no need to become a search-ms protocol expert to successfully detect this attack, but if you want to read more about it, you

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professionals bad-mouth or denigrate the end users (who spend their days creating value at their organizations).

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If I double-click the “\_pdf” link file, nothing happens. Hmm...not very satisfying. Trying another malicious URL, I am once again presented with

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VirusTotal[www.virustotal.com](http://www.virustotal.com)

VirusTotal knows about 52 subdomains of this site, several of which are flagged for malicious activity. VirusTotal knows, so therefore, so do I! Using a

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Best believe I use IDLE

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Just browsing and lightly-interacting with the malicious files being served up via WebDAV created a huge volume of process creation logs in my lab. These logs, while high-volume, are also somewhat informative, telling me that:

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file created in the AppData\Local\Temp directory and verified that they are the same:

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reflective code loading going on each time the PowerShell above ran, and I was well on my way to having my data stolen by something like AsyncRAT and shipped off to the attacker for them to profit off of.

Remember, my goal is not to exhaustively dissect the malware that infected my test VM. I just want to better understand this interesting/novel/emerging initial access vector, so that we can review the existing detection coverage and, as Dr. Fauci used to say, possibly give it a boost!

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search terms like “Invoice.” However, I didn’t have the opportunity to test this concept, so I can’t guarantee it will work!

```
title: Search-ms and WebDAV Indicators in URL
id: 5039f3d2-406a-4c1a-9350-7a5a85dc84c2
status: experimental
description: Detects URL pattern used by search-ms/WebDAV initial access campaign.
references:
  - https://www.trellix.com/en-us/about/newsroom/stories/research/beyond-file-search
author: Micah Babinski
date: 2023/07/31
```

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## Local File Creation

The local temporary WebDAV file creation mentioned earlier creates an interesting opportunity to detect WebDAV abuse, and I was unable to find any open-source rules to detect this behavior. The Sigma rule below will alert on local creation of temporary WebDAV files with any of the suspicious file extensions I saw during the research.

```
title: WebDAV Temporary Local File Creation
id: 4c55738d-72d8-490e-a2db-7969654e375f
```

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## Process Execution

WebDAV usage is not suspicious on its own. We need some detection concepts that will help us identify the bad stuff. Double-clicking .lnk files like the malicious “Invoice\_9283\_pdf” shortcut shown above will result in explorer.exe spawning whatever executable the LNK file targets. Since the WebDAV-delivered .vbs script file resides in the WebDAV server directory, we know that the resulting process Command Line will contain the path to this directory, which from what I’ve seen always contains DavWWWRoot. This Sigma rule from Netron Systems covers this technique, but is limited to net

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```
date: 2023/07/31
tags:
  - attack.execution
  - attack.t1059.001
  - attack.t1204
logsource:
  category: process_creation
  product: windows
detection:
  selection_img:
    ParentImage|endswith: '\explorer.exe'
    Image|endswith:
      - '\wscript.exe'
      - '\cscript.exe'
      - '\cmd.exe'
  selection_cmd:
```

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I am 100% open to and appreciative of any feedback you might wish to offer on my work. I've really enjoyed sharing some of the research I conduct on my off-time with the security community, and am so grateful for those who choose to read and share it. 🙏 If you'd like to access the Sigma rules I've included on GitHub, you can do so here:

### Sigma-Rules/2023\_WebDAV\_SearchMS at main · mbabinski/Sigma-Rules

A repository of my own Sigma detection rules. Contribute to mbabinski/Sigma-Rules development by creating an account on...

nski/Sigma-

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