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CASE ARTIFACTS

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bumblebee

cobaltstrike

Meterpreter

## BumbleBee: Round Two

*September 26, 2022*

In this intrusion from May 2022, the threat actors used [BumbleBee](#) as the initial access vector. BumbleBee has been [identified](#) as an initial access vector utilized by [several ransomware affiliates](#).

In this intrusion, we see the threat actor use BumbleBee to deploy Cobalt Strike and Meterpreter. The threat actor then used RDP and SMB to move around the network looking at backup systems and file shares before being evicted from the network.

## Case Summary

The intrusion began with the delivery of an ISO file containing a LNK file and a BumbleBee payload in the form of a hidden DLL file. A user on a workstation mounted the ISO file and executed the LNK file, running the Bumblebee payload.

Around 15 minutes after the execution of BumbleBee, multiple processes were spawned with the goal of injecting Meterpreter into each of them. After the threat actors gained access with Meterpreter, they began conducting reconnaissance on the workstation and network, including querying domain controllers, mapping domain joined computers, enumerating Active Directory trusts, and listing Domain Admin accounts. All of this first wave of discovery relied on built in Windows utilities like nltest, arp, net, ping, nbtstat, and nslookup.

BumbleBee executed under a user with local administrator privileges on all workstations in the environment. At around six hours after initial execution, we observed a new process created that was then used to host a Cobalt Strike beacon, from the same command and control server observed in a prior [BumbleBee case](#). This beacon reprised discovery activity, but also cut a common command short `net user /dom` instead of `/domain`, whether from keyboard laziness or a trick to trip-up detections. The threat actor then used their access to execute procdump via a remote service creation with the intention of dumping credentials from LSASS from an adjacent workstation on the network.

Next, the threat actors moved laterally via RDP to a server. A new local user, `sql_admin`, was created and added to the local administrator's group and AnyDesk remote access software was installed. Through the AnyDesk session, the threat actor was observed connecting to a file share and accessing multiple documents related to cyber insurance and spreadsheets with passwords.

A second round of enumeration was observed on the beachhead using AdFind, which was executed via the Cobalt Strike beacon on the system. Following this second round of enumeration, the threat actor moved latterly to a server hosting backups, via RDP and interacted with the backup console. From the backup system, the threat actors also opened internet explorer and attempted to load the environment's mail server, likely checking for Outlook Web Access.

A third round of enumeration, this time taking place from the first lateral server host, was observed via a script named '1.bat' that would ping all computers in the environment. Following this third round of enumeration the threat actors were evicted from the environment and no further impact was observed.

We assess with medium confidence this intrusion was related to pre-ransomware activity due to the tool set and techniques the actor displayed.

## Services

We offer multiple services including a [Threat Feed service](#) which tracks Command and Control frameworks such as Cobalt Strike, BumbleBee, Covenant, Metasploit, Empire, PoshC2, etc. More information on this service and others can be found [here](#).

We also have artifacts and IOCs available from this case such as pcaps, memory captures, files, event logs including Sysmon, Kape packages, and more, under our [Security Researcher and Organization](#) services.

## Timeline



Analysis and reporting completed by [@MetallicHack](#), [@iiamaleks](#) & [@svch0st](#)

## Initial Access

The BumbleBee malware has been following the trend of using the effective combination of utilizing an .iso image containing a .lnk and .dll file. We have observed the same behavior with other major malware distributors in previous reports:

- IcedID – [Stolen Images Campaign Ends in Conti Ransomware](#)
- BazarLoader – [Diavol Ransomware](#)

Using the event log, “Microsoft-Windows-VHDMP-Operational.evtx”, we can quickly find when the user mounted the .iso.

Upon clicking the LNK file the BumbleBee payload was executed.

```
"C:\Windows\System32\rundll32.exe" tamirlan.dll,EdHVntqdWt
```

## Execution

Following the user mounting the .iso file, they clicked on a .lnk file documents.lnk. As noted in previous [reports](#), the .dll is hidden from the user unless they display hidden items in explorer like so:

The .lnk contains instructions to execute a specific exported function with the BumbleBee DLL file.

When the .lnk was double clicked by the user, the BumbleBee malware tamirlan.dll was executed:

```
C:\Windows\System32\rundll32.exe tamirlan.dll,EdHVntqdWt
```

The output of [LECmd.exe](#), when used on documents.lnk, provided additional context to where and when this .lnk file was created:

```
>> Tracker database block  
Machine ID: user-pc  
MAC Address: 9a:5b:d6:3e:47:ec  
MAC Vendor: (Unknown vendor)  
Creation: <REDACTED DATE>
```

Approximately 5 seconds after execution, the rundl132.exe process contacted the IP 154.56.0.221. More information on this traffic is covered in the Command and Control section below.

An interesting tactic of note, was the use of WMI and COM function calls to start the process, used to inject into. The BumbleBee loader uses WMI to start new process by calling COM functions to create a new process. Below you can see the COM instance creation followed by defining the WMI namespace and WMI object being created – “Win32\_Process”.

Analysis of the loader found that a function of the malware chooses 1 of 3 target processes before injecting the supplied code:



```
C:\Program Files\Windows Mail\wabmig.exe  
C:\Program Files\Windows Mail\wab.exe  
C:\Program Files\Windows Photo Viewer\ImagingDevices.exe
```

This resulted in new processes not being a child of BumbleBee, but rather WmiPrvSE.exe.

In this intrusion, an instance of C:\Program Files\Windows Photo Viewer\ImagingDevices.exe was created and accessed by the BumbleBee rundll32.exe process. Shortly after this interaction, the process started communicating to a Meterpreter C2 3.85.198.66. This process spawned cmd.exe and several typical discovery commands that are covered in more detail below.

The second process, which spawned the WMI technique, was an instance of C:\Program Files\Windows Mail\wabmig.exe. This process was used to host both a session to another Meterpreter C2 50.16.62.87 and a Cobalt Strike C2 server 45.153.243.142, which was then used to conduct the majority of additional activity including credential dumping and discovery exercises highlighted below. The pivot to using Cobalt Strike began around 6 hours after the execution of the BumbleBee loader.



## Persistence

A new local administrator user was created on a server to facilitate persistence on the machine. The user account was observed to be accessed via an AnyDesk session on the same machine.

```
C:\Windows\System32\cmd.exe
→ net user sql_admin P@ssw0rd! /add
→ net localgroup Administrators sql_admin /ADD
```

In addition, AnyDesk was installed as a service:

## Defense Evasion

The BumbleBee loader itself uses several defense evasion and anti-analysis techniques. As detailed in the Execution section, the use of WMI to spawn new processes is a known technique to evade any parent/child process heuristics or detections.

### **Anti-Analysis**

Once the malware is unpacked, it becomes quite apparent to what the malware author(s) were looking for–

- Known malware analysis process names running:





- Known sandbox usernames (Sorry if your name is Peter Wilson, no malware for you 🙄):

- Specific Virtualization Software files on disk and registry keys (Virtual Box, Qemu, Parallels), example:



## Process Injection

**Create Remote Thread** – The malware used the win32 function `CreateRemoteThread` in order to execute code in `rundll32.exe`.

Named Pipes – Two named pipes were created in order to establish inter-process communications (IPC) between rundll32.exe and wabmig.exe.

```
\postex_515f  
\postex_7c7b
```

## Credential Access

## ProcDump

A remote service was created on one of the workstations in order to dump lsass.

*Event 7045 from Service Control Manager*

```
C:\programdata\procdump64.exe -accepteula -ma lsass.exe  
C:\programdata\lsass.dmp
```

## Discovery

The first discovery stage includes TTPs that we have seen in multiple cases, such as trusts discovery, domain admin group discovery, network discovery and process enumeration.

```
C:\Program Files\Windows Mail\wabmig.exe  
→ C:\Windows\system32\cmd.exe /C ipconfig /all  
→ C:\Windows\system32\cmd.exe /C ping -n 1 <REDACTED_DOMAIN_NAME>  
→ C:\Windows\system32\cmd.exe /C nltest /dclist:  
→ C:\Windows\system32\cmd.exe /C nltest /domain_trusts  
→ C:\Windows\system32\cmd.exe /C net group "domain admins" /domain  
→ C:\Windows\system32\cmd.exe /C tasklist /v /s <REDACTED_IP>
```

## AdFind

AdFind.exe was renamed to af.exe and was used by threat actors in order to enumerate AD users, computers, OU, trusts, subnets and groups.

```
C:\Program Files\Windows Mail\wabmig.exe
→ C:\Windows\system32\cmd.exe /C af.exe -f "(objectcategory=person)" >
ad_users.txt
→ C:\Windows\system32\cmd.exe /C af.exe -f "objectcategory=computer" >
ad_computers.txt
→ C:\Windows\system32\cmd.exe /C af.exe -f "
(objectcategory=organizationalUnit)" > ad_ous.txt
→ C:\Windows\system32\cmd.exe /C af.exe -sc trustdmp > trustdmp.txt
→ C:\Windows\system32\cmd.exe /C af.exe -subnets -f
(objectCategory=subnet) > subnets.txt
→ C:\Windows\system32\cmd.exe /C af.exe -f "(objectcategory=group)" >
ad_group.txt
→ C:\Windows\system32\cmd.exe /C af.exe -gcb -sc trustdmp >
trustdmp.txt
```

## Lateral Movement

The threat actor was observed moving via RDP throughout the network with a Domain Admin account.

As mentioned in Credential Access, the threat actor used remote services to execute commands on remote hosts.

SMB was used to transfer the various tools laterally, as needed in the environment, like procdump.exe and AnyDesk executables.

## Collection

The threat actor accessed multiple documents and folders from a remote file server. The SMB share was accessed through a compromised server via an AnyDesk session.

The lsass dump file ran remotely, was copied to the beachhead through the admin share *C\$*.

After being copied, the file was zipped using 7za.exe (7-zip), in preparation for exfiltration.

```
C:\Program Files\Windows Mail\wabmig.exe
→ C:\Windows\system32\cmd.exe /C copy \\
<REMOTE_WORKSTATION>\C$\ProgramData\lsass.dmp c:\programdata\lsass.dmp
→ C:\Windows\system32\cmd.exe /C 7za.exe a -tzip -mx5
c:\programdata\lsass.zip c:\programdata\lsass.dmp
```

# Command and Control

## BumbleBee

```
154.56.0.221:443
64.44.101.250:443
```

```
JA3: c12f54a3f91dc7bafd92cb59fe009a35
JA3s: 76c691f46143bf86e2d1bb73c6187767
```

Certificate:

```
[ac:18:a0:22:b2:ef:65:c8:85:5e:1f:eb:f5:35:23:28:89:3a:5d:f9]
```

Not Before: 2022/05/19 07:40:24 UTC

Not After: 2023/05/19 07:40:24 UTC

Issuer Org: Internet Widgits Pty Ltd

Subject Org: Internet Widgits Pty Ltd

Public Algorithm: rsaEncryption

Certificate:

```
[0f:a6:76:b0:de:4c:f6:5e:a8:35:60:94:60:69:2c:2c:9c:cb:11:5c]
```

Not Before: 2022/05/19 07:48:30 UTC

Not After: 2023/05/19 07:48:30 UTC

Issuer Org: Internet Widgits Pty Ltd

Subject Org: Internet Widgits Pty Ltd

Public Algorithm: rsaEncryptiion

## Meterpreter

ec2-3-85-198-66.compute-1.amazonaws.com

3.85.198.66:443

JA3: ce5f3254611a8c095a3d821d44539877

JA3s: ec74a5c51106f0419184d0dd08fb05bc

Certificate: [e5:a3:1d:28:ee:34:4f:9d:99:b8:a9:6e:b4:a9:d0:1f:63:43:3c:ac  
]

Not Before: 2021/05/03 23:37:39 UTC

Not After: 2027/05/02 23:37:39 UTC

Issuer Org: Stracke, Lakin and Windler

Subject Common: stracke.lakin.windler.net

Subject Org: Stracke, Lakin and Windler

Public Algorithm: rsaEncryption

Certificate: [84:38:01:51:ba:46:74:89:b3:2a:67:57:b7:a1:4a:5b:49:4a:b9:03  
]

Not Before: 2020/03/19 06:49:58 UTC

Not After: 2026/03/18 06:49:58 UTC

Issuer Org: Reilly-Carroll

Subject Common: reilly.carroll.com

Subject Org: Reilly-Carroll

Public Algorithm: rsaEncryption

ec2-50-16-62-87.compute-1.amazonaws.com

50.16.62.87:443

JA3: ce5f3254611a8c095a3d821d44539877

JA3s: ec74a5c51106f0419184d0dd08fb05bc

Certificate:

[6c:0e:6d:6e:d8:06:92:c6:9a:13:2a:ee:d7:8c:9d:15:63:5e:e9:f2]

Not Before: 2020/09/03 16:14:07 UTC

Not After: 2024/09/02 16:14:07 UTC



```
Issuer Org: Jerde-Kreiger
Subject Common: jerde.kreiger.info
Subject Org: Jerde-Kreiger
Public Algorithm: rsaEncryption
```

## Cobalt Strike

This C2 server was observed in a previous [BumbleBee case](#).

```
https://fuvataren.com
45.153.243.142:443
```

```
JA3: a0e9f5d64349fb13191bc781f81f42e1
JA3s: ae4edc6faf64d08308082ad26be60767
```

```
Certificate:
[6c:54:cc:ce:ca:da:8b:d3:12:98:13:d5:85:52:81:8a:9d:74:4f:fb]
Not Before: 2022/04/15 00:00:00 UTC
Not After: 2023/04/15 23:59:59 UTC
Issuer Org: Sectigo Limited
Subject Common: fuvataren.com [fuvataren.com ,www.fuvataren.com]
Public Algorithm: rsaEncryption
```

## Configuration

```
{
  "beacontype": [
    "HTTPS"
  ],
  "sleeptime": 5000,
  "jitter": 24,
  "maxgetsize": 1398708,
```

```
"spawnto": "AAAAAAAAAAAAAAAAAAAAAA==",
"license_id": 1580103814,
"cfg_caution": false,
"kill_date": null,
"server": {
  "hostname": "fuvataren.com",
  "port": 443,
  "publickey":
"MIGfMA0GCSqGSIb3DQEBAQUAA4GNADCBiQKBgQC5eYxmuxksHBu5Hqtk11PJye1th52fYvmU
XmFrL1vEIQs9+B5NI7a6bHbSHSRN1hRJN2VQ9iwpF/11IFitmWKEbFIErjX1YCy1/1Eg+EawN
4l2ReZ9lz1A9wIDUtQb8fAFYRCSn72Gzb+Pax1VKLt4Kx3QJrpduOhx4q4rdvahPQIDAQABAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA==",
},
"host_header": "",
"useragent_header": null,
"http-get": {
  "uri": "/rs.js",
  "verb": "GET",
  "client": {
    "headers": null,
    "metadata": null
  },
  "server": {
    "output": [
      "print",
      "prepend 600 characters",
      "base64",
      "mask"
    ]
  }
},
"http-post": {
  "uri": "/en",
  "verb": "POST",
  "client": {
    "headers": null,
    "id": null,
```

```
"output": null
},
"tcp_frame_header":
"AAQAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA=",
"crypto_scheme": 0,
"proxy": {
    "type": null,
    "username": null,
    "password": null,
    "behavior": "Use IE settings"
},
"http_post_chunk": 0,
"uses_cookies": true,
"post-ex": {
    "spawnto_x86": "%windir%\\syswow64\\rundll32.exe",
    "spawnto_x64": "%windir%\\sysnative\\rundll32.exe"
},
"process-inject": {
    "allocator": "VirtualAllocEx",
    "execute": [
        "CreateThread",
        "CreateRemoteThread",
        "RtlCreateUserThread"
    ],
    "min_alloc": 11977,
    "starttrwx": false,
    "stub": "tUr+Aexqde3zXhpE+L05KQ==",
    "transform-x86": [
        "prepend '\\x90\\x90\\x90\\x90\\x90\\x90'"
    ],
    "transform-x64": [
        "prepend '\\x90\\x90\\x90\\x90\\x90\\x90'"
    ],

```

```
    "userwx": false
  },
  "dns-beacon": {
    "dns_idle": null,
    "dns_sleep": null,
    "maxdns": null,
    "beacon": null,
    "get_A": null,
    "get_AAAA": null,
    "get_TXT": null,
    "put_metadata": null,
    "put_output": null
  },
  "pipename": null,
  "smb_frame_header":
  "AAQAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
  AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
  AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA=",
  "stage": {
    "cleanup": true
  },
  "ssh": {
    "hostname": null,
    "port": null,
    "username": null,
    "password": null,
    "privatekey": null
  }
}
```

## AnyDesk

AnyDesk was installed to facilitate interactive desktop command and control access to a server in the environment.

Reviewing the [ad\\_svc.trace logs](#) from Anydesk located in %programdata%\AnyDesk reveal the logins originating from 108.177.235.25. This was again the same IP observed in the prior

### Bumblebee case.

```
info REDACTED 19:07:21.173 gsvc 1160 408 24 anynet.any_socket - Logged in fr  
info REDACTED 19:27:45.255 gsvc 1160 408 41 anynet.any_socket - Logged in fr
```

The Client-ID observed in the logs was 892647610

```
info REDACTED 18:56:00.723 lsvc 5924 5928 2 anynet.connection_mgr - New user
```

## Exfiltration

No exfiltration methods were observed beyond the established command and control channels, which can be assessed as likely used to take data like the lsass dump out of the network.

## Impact

The threat actors were evicted from the network before any further impact.

## Indicators

### Atomic

```
BumbleBee  
154.56.0.221:443  
64.44.101.250:443  
103.175.16.117:443  
  
Cobalt Strike  
https://fuvataren.com  
45.153.243.142:443
```

```
Meterpreter
50.16.62.87:443
3.85.198.66:443
```

## Computed

```
document.iso
f4235fde77119ac772a2730d55c49c54
a250adaf3d5a5c2cd4d5ad4390e4cecbe00b3dd7
11bce4f2dcdc2c1992fddefb109e3ddad384b5171786a1daaddadc83be25f355

documents.lnk
fe0a99334486dcd2fcb6ec7a79163524
7aca51b571005c5d1be54fb8a056c33160abbf8d
cadd3f05b496ef137566c90c8fee3905ff13e8bda086b2f0d3cf7512092b541c

tamirlan.dll
69f1eeb7d5d466a2d53c8b7e3a929e9c
a27f6f5cc0051f4c4deed6ee14d5110c7807545f
123f96ff0a583d507439f79033ba4f5aa28cf43c5f2c093ac2445aaebdcfd31b
```

## Behavioral

The threat actor delivers the BumbleBee loader in the form of a DLL (tamirlan.dll) via an ISO file named document.iso and tricks a user into executing it via an LNK (document.lnk).

The threat actor dumps lsass using procdump and copies it over an admin share before using 7zip to zip it.

BumbleBee is used to load both Meterpreter and Cobalt Strike into memory and communicate with the C2 server.

# Detections

## Network

```
ET USER_AGENTS AnyDesk Remote Desktop Software User-Agent
ET POLICY SSL/TLS Certificate Observed (AnyDesk Remote Desktop Software)
ET RPC DCERPC SVCCTL - Remote Service Control Manager Access
ET POLICY SMB2 NT Create AndX Request For an Executable File
ET POLICY SMB Executable File Transfer
```

## Sigma

[https://github.com/The-DFIR-Report/Sigma-Rules/blob/main/14373/bumblebee\\_wmiprivse\\_execution\\_pattern.yaml](https://github.com/The-DFIR-Report/Sigma-Rules/blob/main/14373/bumblebee_wmiprivse_execution_pattern.yaml)

```
title: BumbleBee WmiPrivSE execution pattern
id: 1620db43-fde5-45f3-b4d9-45ca6e79e047
status: Experimental
description: Detects BumbleBee WmiPrivSE parent process manipulation
author: TheDFIRReport
references:
  - https://thedfirreport.com/
date: 2022/09/26
logsource:
  category: process_creation
  product: windows
detection:
  selection_image:
    Image|endswith:
      - 'ImagingDevices.exe'
      - 'wabmig.exe'
  selection_parent:
    ParentImage:endswith:
```

```
- 'WmiPrvSE.exe'
condition: selection_image and selection_parent
falsepositives:
- Unknown
level: high
tags:
- attack.defense_evasion
- attack.t1036
```

[https://github.com/SigmaHQ/sigma/blob/071bcc292362fd3754a2da00878bba4bae1a335f/rules/windows/process\\_creation/proc\\_creation\\_win\\_ad\\_find\\_discovery.yml](https://github.com/SigmaHQ/sigma/blob/071bcc292362fd3754a2da00878bba4bae1a335f/rules/windows/process_creation/proc_creation_win_ad_find_discovery.yml)

[https://github.com/SigmaHQ/sigma/blob/becf3baeb4f6313bf267f7e8d6e9808fc0fc059c/rules/windows/process\\_creation/proc\\_creation\\_win\\_susp\\_recon\\_activity.yml](https://github.com/SigmaHQ/sigma/blob/becf3baeb4f6313bf267f7e8d6e9808fc0fc059c/rules/windows/process_creation/proc_creation_win_susp_recon_activity.yml)

[https://github.com/SigmaHQ/sigma/blob/master/rules/windows/process\\_creation/proc\\_creation\\_win\\_susp\\_procdump\\_lsass.yml](https://github.com/SigmaHQ/sigma/blob/master/rules/windows/process_creation/proc_creation_win_susp_procdump_lsass.yml)

[https://github.com/SigmaHQ/sigma/blob/8bb3379b6807610d61d29db1d76f5af4840b8208/rules/windows/process\\_creation/proc\\_creation\\_win\\_trust\\_discovery.yml](https://github.com/SigmaHQ/sigma/blob/8bb3379b6807610d61d29db1d76f5af4840b8208/rules/windows/process_creation/proc_creation_win_trust_discovery.yml)

[https://github.com/SigmaHQ/sigma/blob/8041ab5130ff8f4d44a9fd9454670f329d2727bc/rules/windows/pipe\\_created/pipe\\_created\\_mal\\_cobaltstrike.yml](https://github.com/SigmaHQ/sigma/blob/8041ab5130ff8f4d44a9fd9454670f329d2727bc/rules/windows/pipe_created/pipe_created_mal_cobaltstrike.yml)

[https://github.com/SigmaHQ/sigma/blob/6e529bb9c8fe7054adf25dfd6ee413d31614feed/rules/windows/process\\_creation/proc\\_creation\\_win\\_susp\\_add\\_local\\_admin.yml](https://github.com/SigmaHQ/sigma/blob/6e529bb9c8fe7054adf25dfd6ee413d31614feed/rules/windows/process_creation/proc_creation_win_susp_add_local_admin.yml)

[https://github.com/SigmaHQ/sigma/blob/8bb3379b6807610d61d29db1d76f5af4840b8208/rules/windows/process\\_creation/proc\\_creation\\_win\\_rundll32\\_not\\_from\\_c\\_drive.yml](https://github.com/SigmaHQ/sigma/blob/8bb3379b6807610d61d29db1d76f5af4840b8208/rules/windows/process_creation/proc_creation_win_rundll32_not_from_c_drive.yml)

## YARA

```
/*
YARA Rule Set
Author: The DFIR Report
Date: 2022-09-26
Identifier: Case 14373 BumbleBee
Reference: https://thedfirreport.com/
*/
```



```
/* Rule Set -----  
---- */  
  
rule case_14373_bumblebee_document_iso {  
    meta:  
        description = "Files - file document.iso"  
        author = "The DFIR Report"  
        reference = "https://thedfirreport.com/"  
        date = "2022-09-26"  
        hash1 =  
"11bce4f2dc2c1992fddefb109e3ddad384b5171786a1daaddadc83be25f355"  
        strings:  
            $x1 =  
"tamirlan.dll,EdHVntqdWt\""%systemroot%\\system32\\imageres.dll" fullword  
wide  
            $s2 = "C:\\Windows\\System32\\rundll32.exe" fullword ascii  
            $s3 = "xotgug064ka8.dll" fullword ascii  
            $s4 = "tamirlan.dll" fullword wide  
            $s5 = ")..\\..\\..\\..\\Windows\\System32\\rundll32.exe" fullword  
wide  
            $s6 = "                <requestedExecutionLevel level='asInvoker'  
uiAccess='false' />" fullword ascii  
            $s7 = "claims indebted fires plastic naturalist deduction  
meaningless yielded automatic wrote damage far use fairly allocation  
lever ne" ascii  
            $s8 = "documents.lnk" fullword wide  
            $s9 = "4System32" fullword wide  
            $s10 =  
"\\_P^YVPX[SY]WT^^RQ_V[YQV\\Y]USUZV[XWT_SWT[UYURVVRVR^^[__XRQPPUXZWYYVU]V  
\\[TS[SSWWVY_R_Y[XZ_W[VVS\\]]ZYSPYURUSP\\U^P^^S\\QVRQXPTV" ascii  
            $s11 =  
"\\_P^YVPX[SY]WT^^RQ_V[YQV\\Y]USUZV[XWT_SWT[UYURVVRVR^^[__XRQPPUXZWYYVU]V  
\\[TS[SSWWVY_R_Y[XZ_W[VVS\\]]ZYSPYURUSP\\U^P^^S\\QVRQXPTV" ascii  
            $s12 = " Type Descriptor'" fullword ascii
```

```
$s13 =
"YP^WTS]V[WPTWR_\P[]WX_SPYQ[SQ]]UWTU]QR\\UQR]]\\^]UZUX\\X^U]P_^S[ZY^R^
]UXWZURR\\]X[^TX\\S\\SWV_[YXP_[^^\\WW\\]]]PU_YZ\\]SVPQX[" ascii
$s14 = "494[/D59:" fullword ascii /* hex encoded string 'IMY' */
$s15 =
"_ZQ\\V\\TW]P\\YW^_PZT_TR[T_WVQUSQPVSPYRSWPS^WVQR_[T_PS[]TT]RSSQV_[_Q]UY\
\\QPVQRXXPPR^_VSZRRRSWXTUV^PRQXPSWPSWSYWWV^YR_Z]PWRP]^" ascii
$s16 = "?+7,*6@24" fullword ascii /* hex encoded string 'v$' */
$s17 = "67?.68@6.3=" fullword ascii /* hex encoded string 'ghc' */
$s18 = "*,+273++C" fullword ascii /* hex encoded string '<' */
$s19 = "*,>?2-:E?@>5D+" fullword ascii /* hex encoded string '.]'
*/

$s20 =
"UPVX]VWVQU[_^ZU[_W^[R^]SPQ[[VPRR]]Z[\\XVU^_TR[YPR\\PY]RXT[_RXSPYSWTU]PV_
SWWUVU\\R_X_U_V[___UW[\\^YU[WTUXSURQ]QSUPTXVXZV]WRP[_XW]" fullword ascii
condition:
    uint16(0) == 0x0000 and filesize < 8000KB and
    1 of ($x*) and 4 of them
}

rule case_14373_bumblebee_tamirlan_dll {
    meta:
        description = "Files - file tamirlan.dll"
        author = "The DFIR Report"
        reference = "https://thedfirreport.com/"
        date = "2022-09-26"
        hash1 =
"123f96ff0a583d507439f79033ba4f5aa28cf43c5f2c093ac2445aaebdcfd31b"
        strings:
            $s1 = "xotgug064ka8.dll" fullword ascii
            $s2 = "
                <requestedExecutionLevel level='asInvoker'
uiAccess='false' />" fullword ascii
            $s3 = "claims indebted fires plastic naturalist deduction
meaningless yielded automatic wrote damage far use fairly allocation
lever ne" ascii
            $s4 =
"\_P^YVPX[SY]WT^^RQ_V[YQV\\Y]USUZV[XWT_SWT[UYURVVRVR^^[_XRQPPUXZWYYVU]V
```

```
\\[TS[SSWWVY_R_Y[XZ_W[VVS\\]ZYSPYURUSP\\U^P^S\\QVRQXPTV" ascii
    $s5 =
"\_P^YVPX[SY]WT^^RQ_V[YQV\\Y]USUZV[XWT_SWT[UYURVVVRV^[_XRQPPUXZWYYVU]V
\\[TS[SSWWVY_R_Y[XZ_W[VVS\\]ZYSPYURUSP\\U^P^S\\QVRQXPTV" ascii
    $s6 = " Type Descriptor'" fullword ascii
    $s7 =
"YP^WTS]V[WPTWR_\\P[]WX_SPYQ[SQ]]UWTU]QR\\UQR]]\\^]UZUX\\X^U]P_^S[ZY^R^
]UXWZURR\\]X[^TX\\S\\SWV_[YXP_[^\\\\WW\\]]]PU_YZ\\]SVPQX[" ascii
    $s8 = "494[/D59:" fullword ascii /* hex encoded string 'IMY' */
    $s9 =
"_ZQ\\V\\TW]P\\YW^_PZT_TR[T_WVQUSQPVSPYRSWPS^WVQR_[T_PS[]TT]RSSQV[_Q]UY\\
\\QPVQRXXPPR^_VSZRRRSWXTUV^PRQQXPSWPSWSYWWV^YR_Z]PWRP]^" ascii
    $s10 = "?+7,*6@24" fullword ascii /* hex encoded string 'v$' */
    $s11 = "67?.68@6.3=" fullword ascii /* hex encoded string 'ghc' */
    $s12 = "*,+273++C" fullword ascii /* hex encoded string '<' */
    $s13 = "*:>?2-:E?@>5D+" fullword ascii /* hex encoded string '.' */
*/
    $s14 =
"UPVX]VWVQU[_^ZU[_W^[R^]SPQ[[VPRR]]Z[\\XVU^_TR[YPR\\PY]RXT[_RXSPYSWTU]PV_
SWWUVU\\R_X_U_V[___UW[\\^YU[WTUXSURQ]QSUPTXVXZV]WRP[_XW]" fullword ascii
    $s15 =
"YX\\^SPP^XW_^^_Y]ZY[T_UQU_QXP[SV^RT_ZRPV\\YVVYPVR^UP^QYQXV^\\]]T_SQQR_ZS
QZT_Y^^_Z]QYW\\Z_T_VRTWQZPS\\X\\_]W]PTTSP\\[]WVSRR\\Q]Q" ascii
    $s16 = "Z_VV\\PSYWUT_Z\\WQSPY\\ZZ\\PY]W]
[RW^\\^ZPUZV[WZ\\QU_V[YU\\X[Q_\\YQQPZ[VR\\QUZUQVQ^PUPUXWQ_ZTRTZU[T^QUZ[U
ZRVYV\\^WRY_SR_YUUY_]S" ascii
    $s17 = "R_XUSP^T[RVXUR_\\VU\\Y[YWV\\WYXV\\SQ_RU]
[R\\ZTU\\PWYQ[ZSRTQUZ]\\WSPY\\P[_]TX]YZPTSSZ[VXW[YT\\W\\Z[SXRYZYQ^PR^VZVU
^VRV][RR]S\\V_" ascii
    $s18 = "Z_VV\\PSYWUT_Z\\WQSPY\\ZZ\\PY]W]
[RW^\\^ZPUZV[WZ\\QU_V[YU\\X[Q_\\YQQPZ[VR\\QUZUQVQ^PUPUXWQ_ZTRTZU[T^QUZ[U
ZRVYV\\^WRY_SR_YUUY_]S" ascii
    $s19 =
"PQP]^_\\ZZUSZYT_^S_SPPV]\\XPT_TPQU\\VWZQYZPZ^]]SW]R^[WYP]^[[R_RTSPYW^WU
^QVPZ" fullword ascii
    $s20 =
```

```
"Y]_QU\\ZQQSXRX[SPYVRWXU^P[VSSWUR]]PSWV\\X]Y[PX_UZ_PPP[WQVXY^^]^RRSPZ]^XW
V^]" fullword ascii
    condition:
        uint16(0) == 0x5a4d and filesize < 3000KB and
        8 of them
    }

rule case_14373_bumblebee_documents_lnk {
    meta:
        description = "Files - file documents.lnk"
        author = "The DFIR Report"
        reference = "https://thedfirreport.com/"
        date = "2022-09-26"
        hash1 =
"cadd3f05b496ef137566c90c8fee3905ff13e8bda086b2f0d3cf7512092b541c"
        strings:
            $x1 =
"tamirlan.dll,EdHVntqdWt\\"%systemroot%\system32\imageres.dll" fullword
wide
            $s2 = "C:\\Windows\\System32\\rundll32.exe" fullword ascii
            $s3 = ")..\\..\\..\\..\\Windows\\System32\\rundll32.exe" fullword
wide
            $s4 = "4System32" fullword wide
            $s5 = "user-pc" fullword ascii
            $s6 = "}Windows" fullword wide
        condition:
            uint16(0) == 0x004c and filesize < 4KB and
            1 of ($x*) and all of them
    }
```

## MITRE

Mark-of-the-Web Bypass - T1553.005

User Execution - T1204

Rundll32 - T1218.011  
Masquerading - T1036  
Local Account - T1136.001  
LSASS Memory - T1003.001  
Archive via Utility - T1560.001  
Archive Collected Data - T1560  
Service Execution - T1569.002  
Process Discovery - T1057  
System Network Configuration Discovery - T1016  
Domain Trust Discovery - T1482  
Domain Groups - T1069.002  
SMB/Windows Admin Shares - T1021.002  
Lateral Tool Transfer - T1570  
Remote Desktop Protocol - T1021.001  
Web Protocols - T1071.001  
Remote Access Software - T1219  
Process Injection - T1055

## Internal case #14373

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