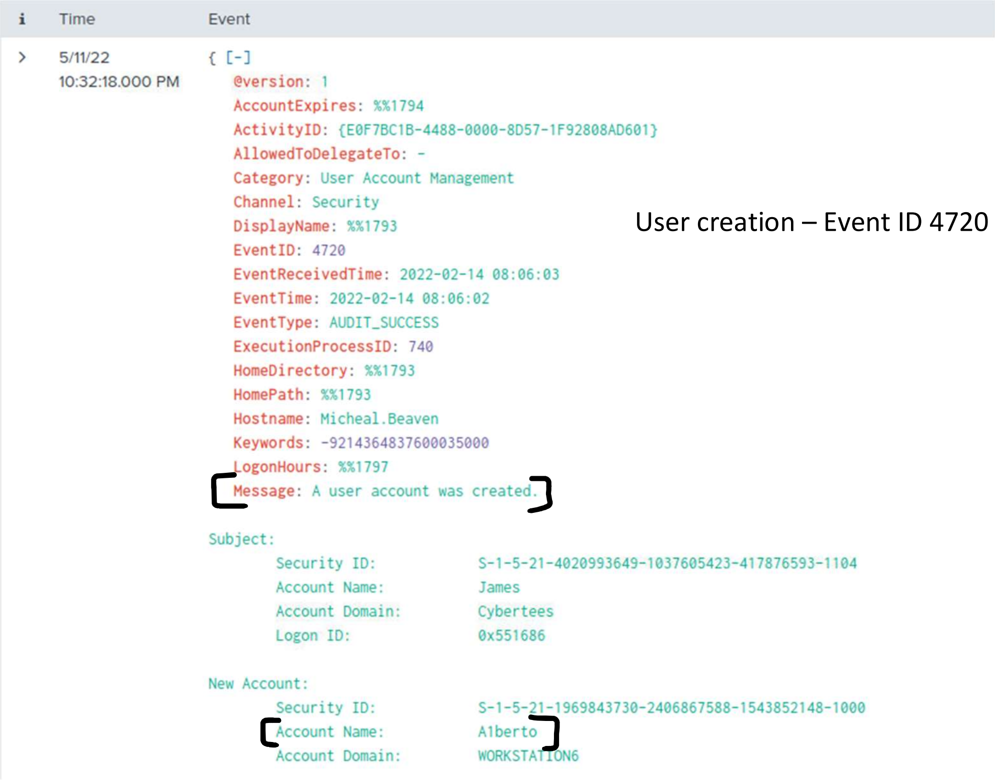
Investigating with Splunk

SOC Analyst Johny has observed some anomalous behaviours in the logs of a few windows machines. It looks like the adversary has access to some of these machines and successfully created some backdoor. His manager has asked him to pull those logs from suspected hosts and ingest them into Splunk for quick investigation. Our task as SOC Analyst is to examine the logs and identify the anomalies.

index=main

1) On one of the infected hosts, the adversary was successful in creating a backdoor user. What is the new username?

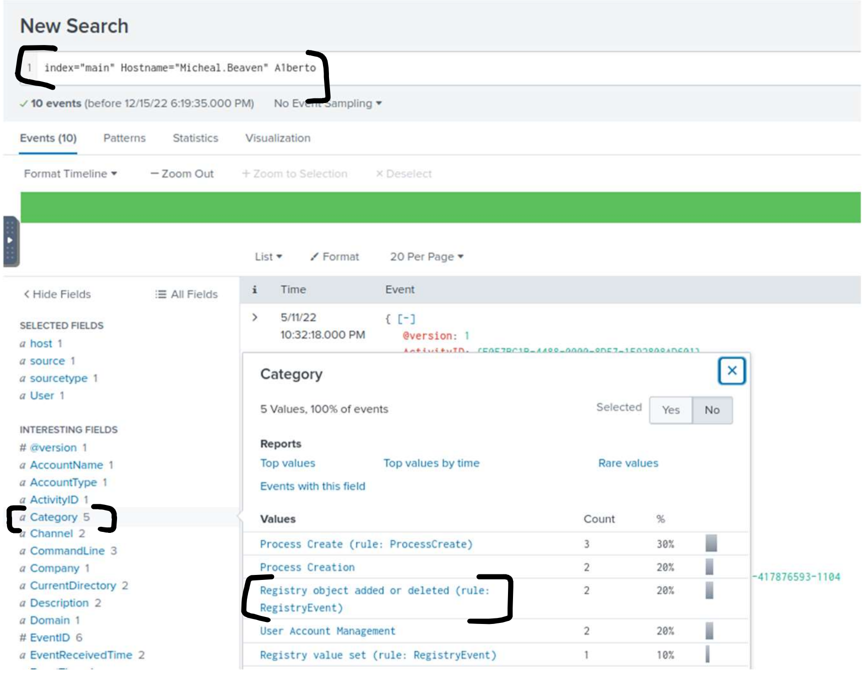


```
i   Time                 Event
>   5/11/22              { [-]
    10:32:18.000 PM         @version: 1
                            AccountExpires: %%1794
                            ActivityID: {E0F7BC1B-4488-0000-8D57-1F92808AD601}
                            AllowedToDelegateTo: -
                            Category: User Account Management
                            Channel: Security
                            DisplayName: %%1793
                            EventID: 4720
                            EventReceivedTime: 2022-02-14 08:06:03
                            EventTime: 2022-02-14 08:06:02
                            EventType: AUDIT_SUCCESS
                            ExecutionProcessID: 740
                            HomeDirectory: %%1793
                            HomePath: %%1793
                            Hostname: Micheal.Beaven
                            Keywords: -9214364837600035000
                            LogonHours: %%1797
                            Message: A user account was created.

                         Subject:
                                 Security ID:           S-1-5-21-4020993649-1037605423-417876593-1104
                                 Account Name:          James
                                 Account Domain:        Cybertees
                                 Logon ID:              0x551686

                         New Account:
                                 Security ID:           S-1-5-21-1969843730-2406867588-1543852148-1000
                                 Account Name:          A1berto
                                 Account Domain:        WORKSTATION6
```

User creation – Event ID 4720

2) On the same host, a registry key was also updated regarding the new backdoor user. What is the full path of that registry key?

Hostname: Michael.Beaven (from user account creation)
Backdoor user: A1berto



```
index="main" Hostname="Micheal.Beaven" A1berto
```

✓ 10 events (before 12/15/22 6:19:35.000 PM)   No Event Sampling ▾

SELECTED FIELDS
a host 1
a source 1
a sourcetype 1
a User 1

INTERESTING FIELDS
# @version 1
a AccountName 1
a AccountType 1
a ActivityID 1
a Category 5
a Channel 2
a CommandLine 3
a Company 1
a CurrentDirectory 2
a Description 2
a Domain 1
# EventID 6
a EventReceivedTime 2

i	Time	Event
>	5/11/22 10:32:18.000 PM	{ [-] @version: 1

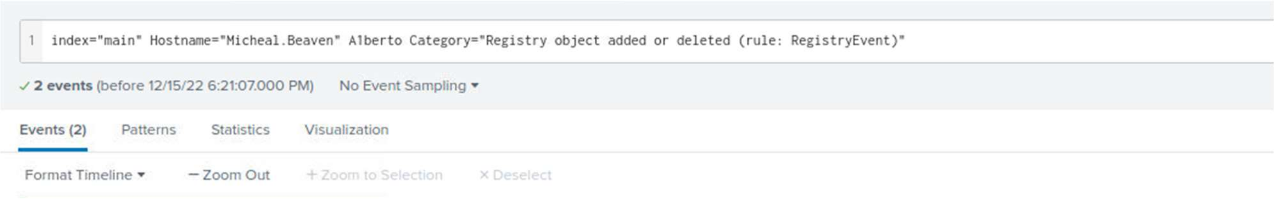
Category

5 Values, 100% of events   Selected Yes No

Reports
Top values   Top values by time   Rare values
Events with this field

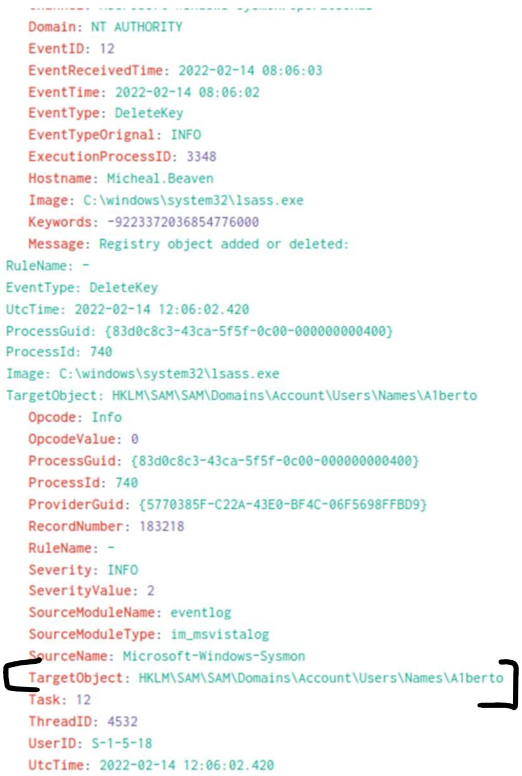
Values	Count	%
Process Create (rule: ProcessCreate)	3	30%
Process Creation	2	20%
Registry object added or deleted (rule: RegistryEvent)	2	20%
User Account Management	2	20%
Registry value set (rule: RegistryEvent)	1	10%

-417876593-1104



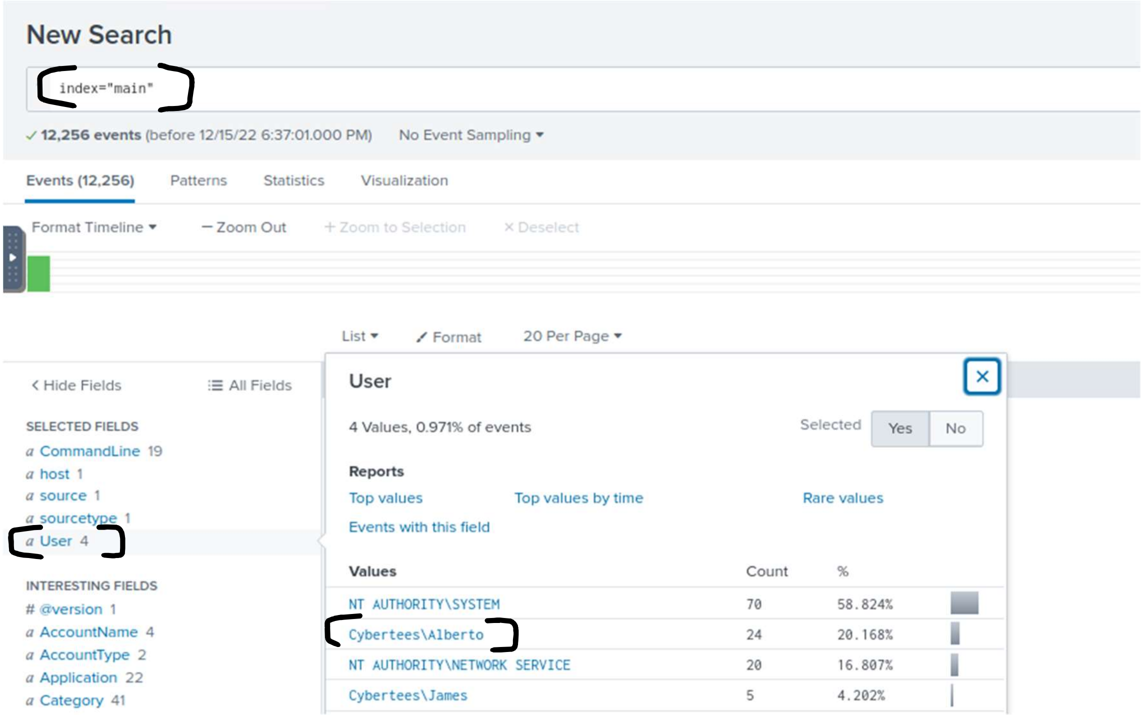
```
index="main" Hostname="Micheal.Beaven" A1berto Category="Registry object added or deleted (rule: RegistryEvent)"
```

✓ 2 events (before 12/15/22 6:21:07.000 PM)   No Event Sampling ▾



```
   Domain: NT AUTHORITY
   EventID: 12
   EventReceivedTime: 2022-02-14 08:06:03
   EventTime: 2022-02-14 08:06:02
   EventType: DeleteKey
   EventTypeOrignal: INFO
   ExecutionProcessID: 3348
   Hostname: Micheal.Beaven
   Image: C:\windows\system32\lsass.exe
   Keywords: -9223372036854776000
   Message: Registry object added or deleted:
RuleName: -
EventType: DeleteKey
UtcTime: 2022-02-14 12:06:02.420
ProcessGuid: {83d0c8c3-43ca-5f5f-0c00-000000000400}
ProcessId: 740
Image: C:\windows\system32\lsass.exe
TargetObject: HKLM\SAM\SAM\Domains\Account\Users\Names\A1berto
   Opcode: Info
   OpcodeValue: 0
   ProcessGuid: {83d0c8c3-43ca-5f5f-0c00-000000000400}
   ProcessId: 740
   ProviderGuid: {5770385F-C22A-43E0-BF4C-06F5698FFBD9}
   RecordNumber: 183218
   RuleName: -
   Severity: INFO
   SeverityValue: 2
   SourceModuleName: eventlog
   SourceModuleType: im_msvistalog
   SourceName: Microsoft-Windows-Sysmon
   TargetObject: HKLM\SAM\SAM\Domains\Account\Users\Names\A1berto
   Task: 12
   ThreadID: 4532
   UserID: S-1-5-18
   UtcTime: 2022-02-14 12:06:02.420
```

3) Examine the logs and identify the user that the adversary was trying to impersonate.



New Search

```
index="main"
```

✓ **12,256 events** (before 12/15/22 6:37:01.000 PM) No Event Sampling ▾

SELECTED FIELDS
- *a* CommandLine 19
- *a* host 1
- *a* source 1
- *a* sourcetype 1
- *a* User 4

INTERESTING FIELDS
- # @version 1
- *a* AccountName 4
- *a* AccountType 2
- *a* Application 22
- *a* Category 41

User ×

4 Values, 0.971% of events — Selected: Yes | No

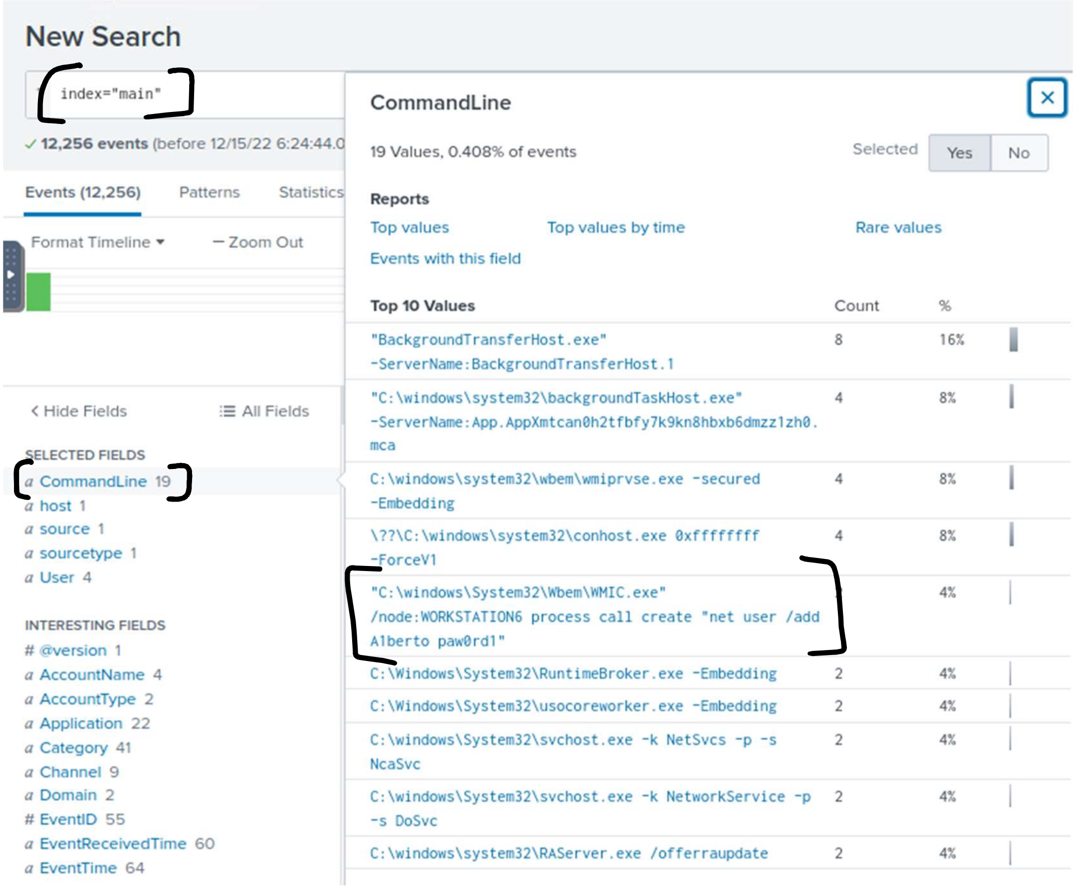
Reports

Top values · Top values by time · Rare values

Events with this field

Values	Count	%
NT AUTHORITY\SYSTEM	70	58.824%
Cybertees\Alberto	24	20.168%
NT AUTHORITY\NETWORK SERVICE	20	16.807%
Cybertees\James	5	4.202%

4) What is the command used to add a backdoor user from a remote computer?



New Search

```
index="main"
```

✓ **12,256 events** (before 12/15/22 6:24:44.0

SELECTED FIELDS
- *a* CommandLine 19
- *a* host 1
- *a* source 1
- *a* sourcetype 1
- *a* User 4

INTERESTING FIELDS
- # @version 1
- *a* AccountName 4
- *a* AccountType 2
- *a* Application 22
- *a* Category 41
- *a* Channel 9
- *a* Domain 2
- # EventID 55
- *a* EventReceivedTime 60
- *a* EventTime 64

CommandLine ×

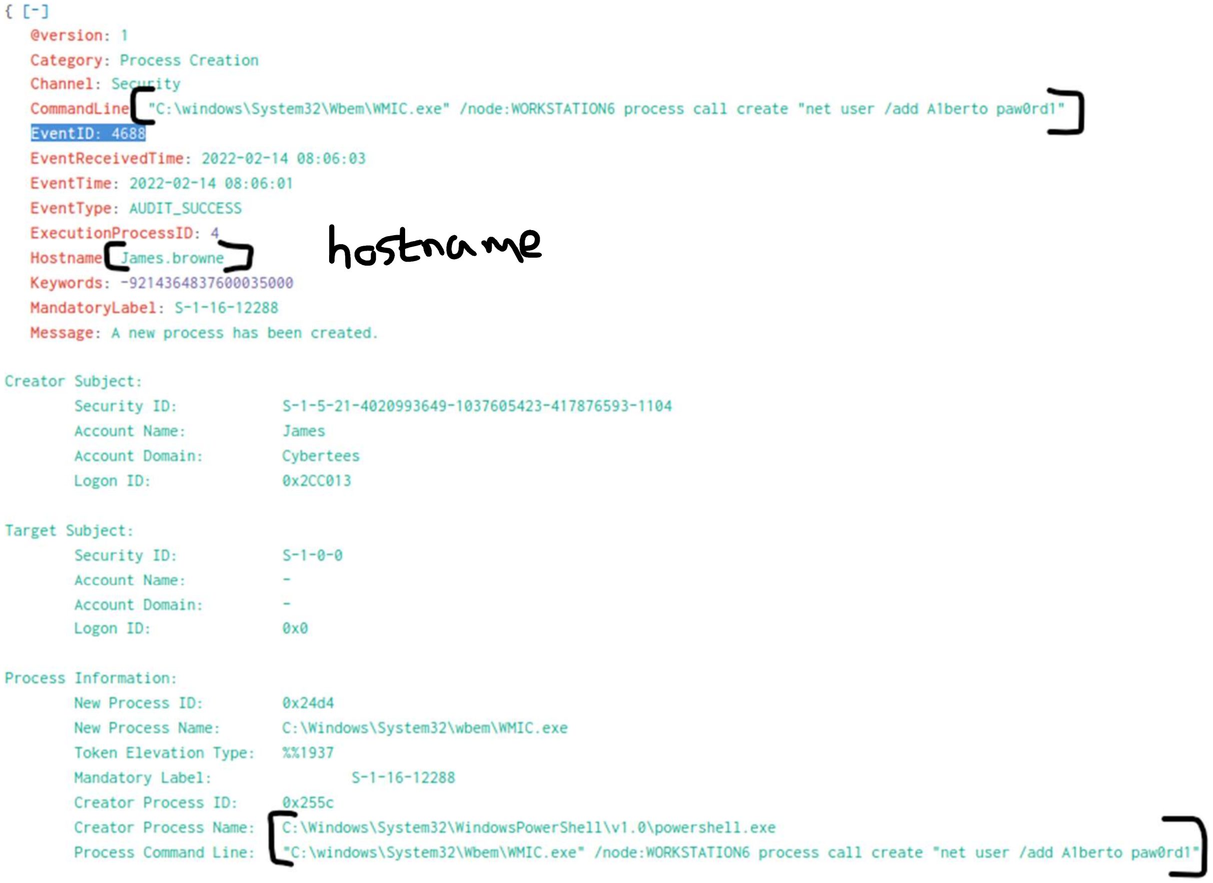
19 Values, 0.408% of events — Selected: Yes | No

Reports

Top values · Top values by time · Rare values

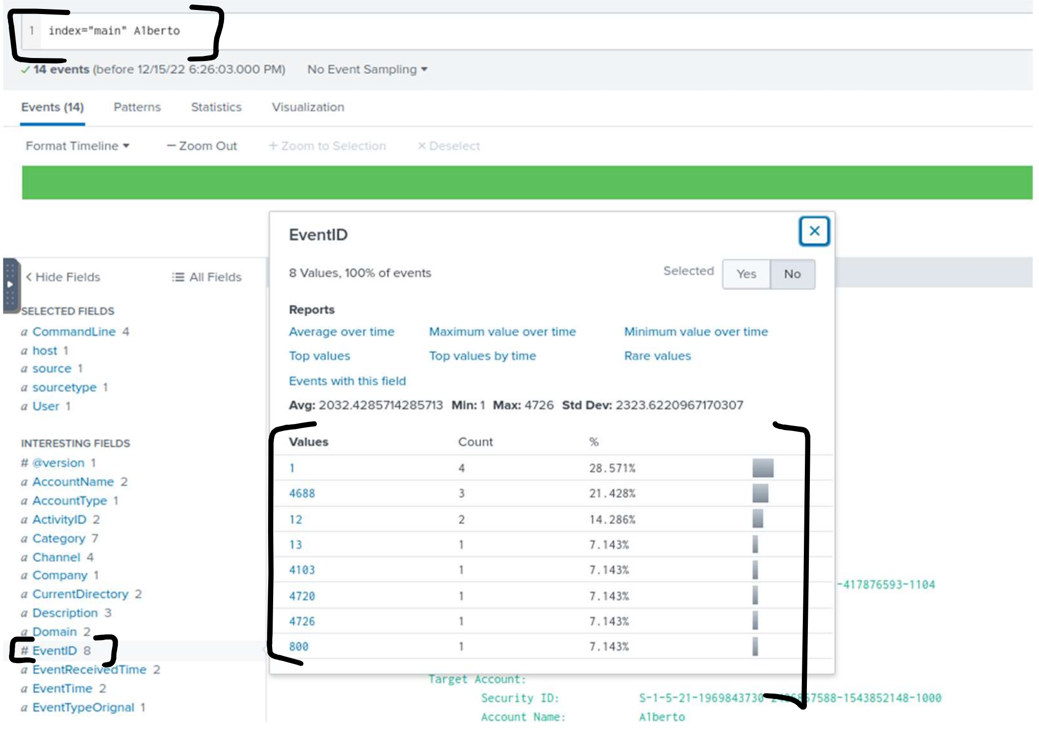
Events with this field

Top 10 Values	Count	%
"BackgroundTransferHost.exe" -ServerName:BackgroundTransferHost.1	8	16%
"C:\windows\system32\backgroundTaskHost.exe" -ServerName:App.AppXmtcan0h2tfbfy7k9kn8hbxb6dmzz1zh0.mca	4	8%
C:\windows\system32\wbem\wmiprvse.exe -secured -Embedding	4	8%
\??\C:\windows\system32\conhost.exe 0xffffffff -ForceV1	4	8%
"C:\windows\System32\Wbem\WMIC.exe" /node:WORKSTATION6 process call create "net user /add Alberto paw0rd1"		4%
C:\Windows\System32\RuntimeBroker.exe -Embedding	2	4%
C:\Windows\System32\usocoreworker.exe -Embedding	2	4%
C:\windows\System32\svchost.exe -k NetSvcs -p -s NcaSvc	2	4%
C:\windows\System32\svchost.exe -k NetworkService -p -s DoSvc	2	4%
C:\windows\system32\RAServer.exe /offerraupdate	2	4%



```
{ [-]
   @version: 1
   Category: Process Creation
   Channel: Security
   CommandLine "C:\windows\System32\Wbem\WMIC.exe" /node:WORKSTATION6 process call create "net user /add A1berto paw0rd1"
   EventID: 4688
   EventReceivedTime: 2022-02-14 08:06:03
   EventTime: 2022-02-14 08:06:01
   EventType: AUDIT_SUCCESS
   ExecutionProcessID: 4
   Hostname James.browne
   Keywords: -9214364837600035000
   MandatoryLabel: S-1-16-12288
   Message: A new process has been created.

Creator Subject:
        Security ID:            S-1-5-21-4020993649-1037605423-417876593-1104
        Account Name:           James
        Account Domain:         Cybertees
        Logon ID:               0x2CC013

Target Subject:
        Security ID:            S-1-0-0
        Account Name:           -
        Account Domain:         -
        Logon ID:               0x0

Process Information:
        New Process ID:         0x24d4
        New Process Name:       C:\Windows\System32\wbem\WMIC.exe
        Token Elevation Type:   %%1937
        Mandatory Label:                S-1-16-12288
        Creator Process ID:     0x255c
        Creator Process Name:   C:\Windows\System32\WindowsPowerShell\v1.0\powershell.exe
        Process Command Line:   "C:\windows\System32\Wbem\WMIC.exe" /node:WORKSTATION6 process call create "net user /add A1berto paw0rd1"
```

5) How many times was the login attempt from the backdoor user observed during the investigation?



```
index="main" A1berto
```

✓ 14 events (before 12/15/22 6:26:03.000 PM)   No Event Sampling ▾

SELECTED FIELDS
- a CommandLine 4
- a host 1
- a source 1
- a sourcetype 1
- a User 1

INTERESTING FIELDS
- # @version 1
- a AccountName 2
- a AccountType 1
- a ActivityID 2
- a Category 7
- a Channel 4
- a Company 1
- a CurrentDirectory 2
- a Description 3
- a Domain 2
- # EventID 8
- a EventReceivedTime 2
- a EventTime 2
- a EventTypeOrignal 1

EventID

8 Values, 100% of events

Avg: 2032.4285714285713 **Min:** 1 **Max:** 4726 **Std Dev:** 2323.6220967170307

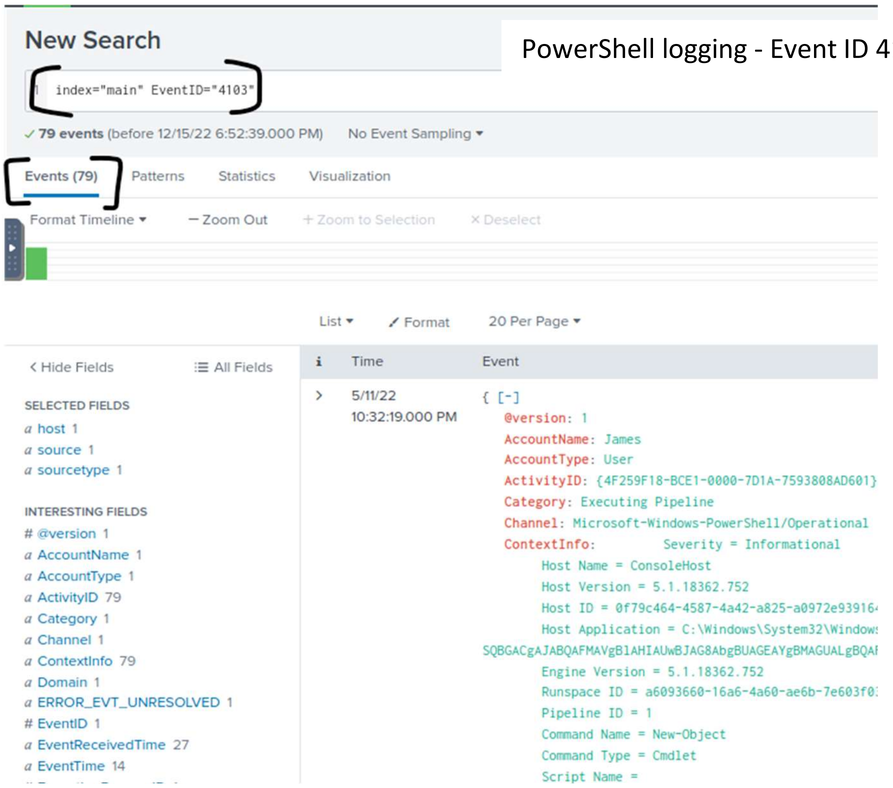
Values	Count	%
1	4	28.571%
4688	3	21.428%
12	2	14.286%
13	1	7.143%
4103	1	7.143%
4720	1	7.143%
4726	1	7.143%
800	1	7.143%

```
-417876593-1104
Target Account:
        Security ID:            S-1-5-21-1969843730-2[illegible]7588-1543852148-1000
        Account Name:           A1berto
```

Event ID 4625 documents every failed attempt at logging on to a local computer.

0 events for Event ID 4625 – A1berto

6) PowerShell logging is enabled on this device. How many events were logged for the malicious PowerShell execution?



PowerShell logging - Event ID 4103

```
index="main" EventID="4103"
```

✓ 79 events (before 12/15/22 6:52:39.000 PM) No Event Sampling ▾

SELECTED FIELDS

- a host 1
- a source 1
- a sourcetype 1

INTERESTING FIELDS

- # @version 1
- a AccountName 1
- a AccountType 1
- a ActivityID 79
- a Category 1
- a Channel 1
- a ContextInfo 79
- a Domain 1
- a ERROR_EVT_UNRESOLVED 1
- # EventID 1
- a EventReceivedTime 27
- a EventTime 14

i	Time	Event
>	5/11/22 10:32:19.000 PM	see below

```
{ [-]
   @version: 1
   AccountName: James
   AccountType: User
   ActivityID: {4F259F18-BCE1-0000-7D1A-7593808AD601}
   Category: Executing Pipeline
   Channel: Microsoft-Windows-PowerShell/Operational
   ContextInfo:         Severity = Informational
        Host Name = ConsoleHost
        Host Version = 5.1.18362.752
        Host ID = 0f79c464-4587-4a42-a825-a0972e93916
        Host Application = C:\Windows\System32\Window
SQBGACgAJABQAFMAVgBlAHIAUwBJAG8AbgBUAGEAYgBMAGUALgBQA
        Engine Version = 5.1.18362.752
        Runspace ID = a6093660-16a6-4a60-ae6b-7e603f0
        Pipeline ID = 1
        Command Name = New-Object
        Command Type = Cmdlet
        Script Name =
```