



Azure Sentinel

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Visão geral sobre o Solorigate

Como o Microsoft Azure Sentinel pode ajudar você a buscar atividades de invasores em sua empresa

- 01.** Como buscar ataques Solorigate
- 02.** Usar logs de eventos do Windows e o Azure Sentinel
- 03.** Buscar dados brutos no Azure Sentinel e no Microsoft Defender para Pontos de Extremidade
- 04.** Buscar indícios de roubo de tokens SAML de certificados
- 05.** Alertas do Microsoft 365 Defender e do Sentinel
- 06.** Usar a pasta de trabalho do Azure Sentinel e o GitHub

Azure Sentinel | Overview

Selected workspace: 'cybersecuritysoc'

Search (Ctrl+/) | Refresh | Last 14 days

- General
 - Overview
 - Logs
 - News & guides
- Threat management
 - Incidents
 - Workbooks
 - Hunting
 - Notebooks (Preview)
 - Entity behavior
 - Threat intelligence (Preview)
- Configuration
 - Data connectors
 - Analytics
 - Entity Settings (Preview)
 - Watchlist (Preview)
 - Playbooks
 - Community
 - Settings

50M ↑ 13.1M
Events

1.2K ↑ 520
Alerts

1.6K ↑ 936
Incidents

Incidents by status

- New (1.6K)
- Active (6)
- Closed (True Positive) (1)
- Closed (False Positive) (1)

Events and alerts over time



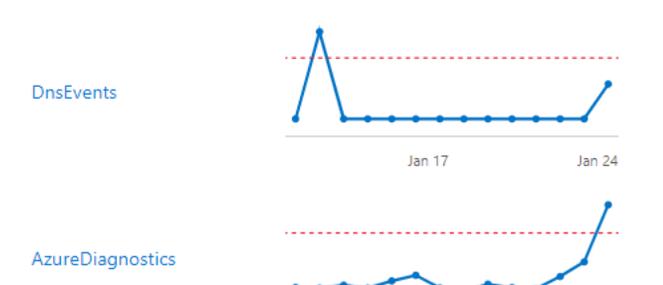
Potential malicious events



Recent incidents

Severity	Incident Description	Count
Low	DDoS Attack mitigated for Public IP	1 Aler
High	DDoS Attack detected for Public IP	1 Aler
Medium	TI map IP entity to AzureActivity (enriched)	1 Aler
Medium	Time series anomaly detection for total v...	5 Aler
Low	DDoS Attack mitigated for Public IP	1 Aler

Data source anomalies



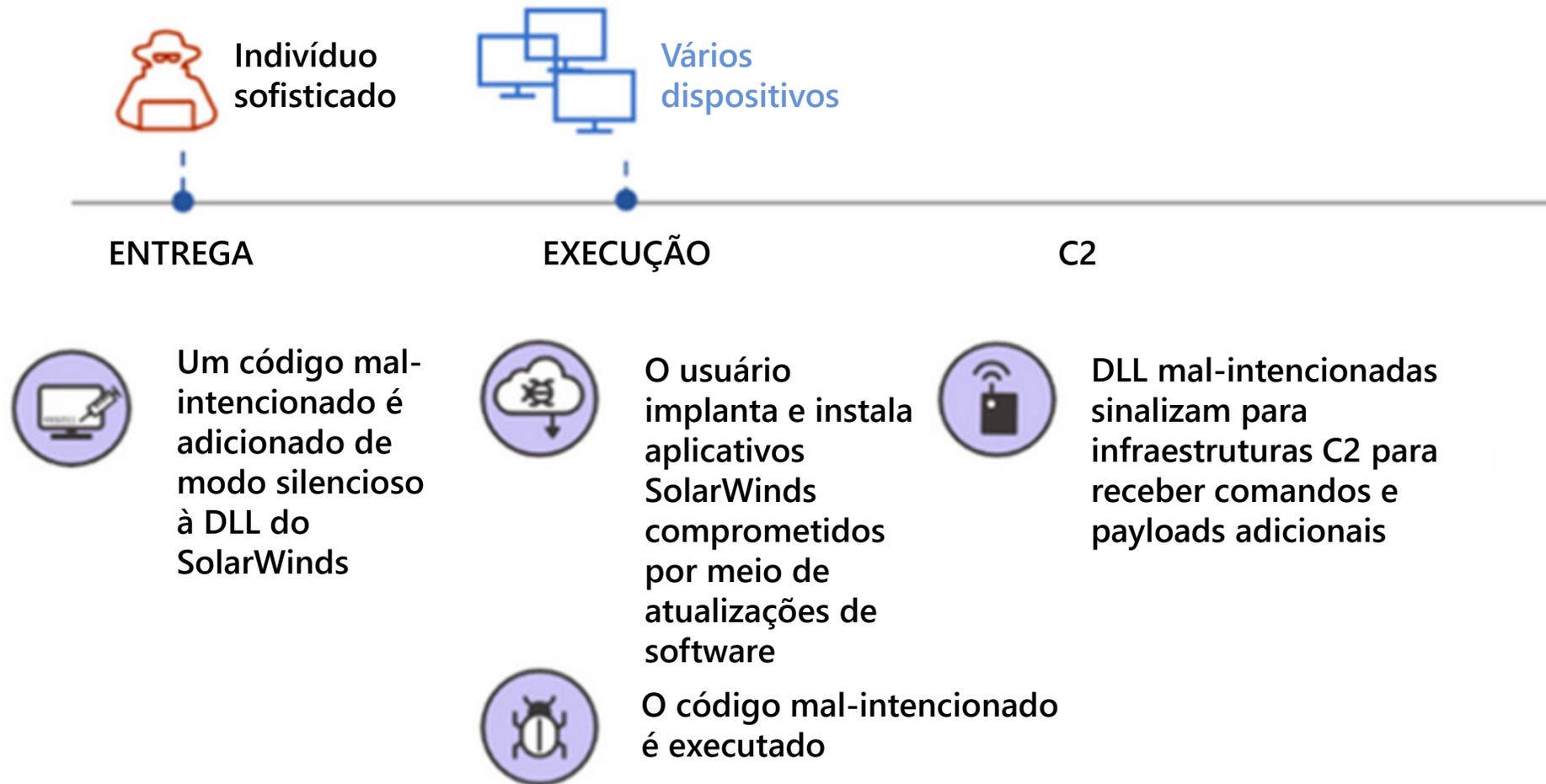


Diagrama do ataque à cadeia de suprimento do Solorigate

Azure Sentinel | Logs

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- General
- Overview
- Logs**
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 - Watchlist (Preview)
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 - Community
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New Query 1*

CyberSecuritySOC

Tables | Queries | Filter

Search

Filter | Group by: Solution

Collapse all

Favorites

You can add favorites by clicking on the ☆ icon

- Azure Monitor for VMs
- Azure Sentinel
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- DNS Analytics (Preview)
- LogManagement
- Network Performance Monitor
- Security and Audit
- SecurityCenterFree
- SQL Vulnerability Assessment
- WindowsEventForwarding
- Custom Logs
- Functions

Run | Time range: Last 24 hours | Save | Copy link | New alert rule | Export | Pin to dashboard | Format query

```

13 (union isfuzzy=true
14 (
15 SecurityEvent
16 | where EventID == '4688'
17 | where NewProcessName has 'SolarWinds'
18 | extend MachineName = Computer , Process = NewProcessName
19 ),
20 (
21 DeviceProcessEvents
22 | where InitiatingProcessFolderPath has 'SolarWinds'
23 | extend MachineName = DeviceName , Process = InitiatingProcessFolderPath
24 )
25 )
26 | summarize StartTime = min(TimeGenerated), EndTime = max(TimeGenerated), make_set(Process) by MachineName
27
    
```

Results | Chart | Columns | Add bookmark | Display time (UTC+00:00) | Group columns

Completed. Showing results from the last 24 hours. 00:00.5 4 records

	MachineName	StartTime [UTC]	EndTime [UTC]	set_Process
>	SolWinds1	12/14/2020, 11:14:21.000 AM	12/14/2020, 11:21:41.000 AM	["c:\\program files (x86)\\solarwinds\\orion\\erlang\\erts-10.1\\bin\\erl.exe", "c:\\program files (x86)\\sc...
>	SolWinds2	12/15/2020, 2:05:32.000 AM	12/15/2020, 2:05:32.000 AM	["c:\\program files (x86)\\solarwinds\\orion\\sqlexpress\\mssql14.solarwinds_orion\\mssql\\binn\\fdlau...
>	SolWinds3	12/7/2020, 4:48:29.000 PM	12/7/2020, 4:48:29.000 PM	["c:\\program files (x86)\\solarwinds\\orion\\sqlexpress\\mssql14.solarwinds_orion\\mssql\\binn\\fdlau...
>	SolWinds4	12/9/2020, 10:08:42.000 PM	12/9/2020, 10:08:42.000 PM	["c:\\program files (x86)\\solarwinds\\orion\\sqlexpress\\mssql14.solarwinds_orion\\mssql\\binn\\fdlau...

Azure Sentinel | Logs

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- Overview
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Run Time range: Last 24 hours Save Copy link New alert rule Export Pin to dashboard Format query

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23 | extend MachineName = DeviceName , Process = InitiatingProcessFolderPath
24 )
25 )
26 | summarize StartTime = min(TimeGenerated), EndTime = max(TimeGenerated), make_set(Process) by MachineName
27
28

```

Results Chart

Completed 00:03.4 0 records

i No query was selected
 Type a query and place the cursor anywhere in the query.
 A query can contain line breaks, but no blank lines.

Azure Sentinel | Logs

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Search (Ctrl+/)

New Query 1*

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- Incidents
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- Tables Queries Filter
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- Filter Group by: Solution
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```

8 (union isfuzzy=true
9   (Event
10    | where Source == "Microsoft-Windows-Sysmon"
11    | where EventID in (17,18)
12    | extend EvData = parse_xml(EventData)
13    | extend EventDetail = EvData.DataItem.EventData.Data
14    | extend NamedPipe = EventDetail.[5].["#text"]
15    | extend ProcessDetail = EventDetail.[6].["#text"]
16    | where NamedPipe contains '583da945-62af-10e8-4902-a8f205c72b2e'
17    | extend Account = UserName
18    | project-away EventDetail, EvData
19   ),
20   (
21    SecurityEvent
22    | where (EventID == '5145' and AccessList has '%4418' and RelativeTargetName contains '583da945-62af-10e8-4902-a8f205c72b2e')
23    or (EventID == "4688" and FilePath =~ "c:\\windows\\syswow64\\netsetupsvc.dll" or NewProcessName =~ "c:\\windows\\syswow64\\netsetupsvc.
24    (DeviceProcessEvents
25    | where FolderPath =~ "c:\\windows\\syswow64\\netsetupsvc.dll"))
26    | summarize FirstSeen = min(TimeGenerated), Processes=make_set(NewProcessName) by Computer, IPAddress

```

Results Chart Columns Add bookmark Display time (UTC+00:00) Group columns

Completed. Showing results from the last 24 hours. 00:00.5 2 records

Computer	IpAddress	FirstSeen [UTC]	Processes
Computer	SolWinds1		
IpAddress	10.7.1.15		
FirstSeen [UTC]	2020-12-16T07:54:01Z		
Processes	["c:\\windows\\syswow64\\netsetupsvc.dll"]		

Azure Sentinel | Logs

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 - Notebooks (Preview)
 - Entity behavior
 - Threat intelligence (Preview)
- Configuration
 - Data connectors
 - Analytics
 - Entity Settings (Preview)
 - Watchlist (Preview)
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Run Time range: Last 24 hours Save Copy link New alert rule Export Pin to dashboard Format query

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23 or (EventID == "4688" and FilePath =~ "c:\\windows\\syswow64\\netsetupsvc.dll" or NewProcessName =~ "c:\\windows\\syswow64\\netsetupsvc.
dll")),
24 (DeviceProcessEvents
25 | where FolderPath =~ "c:\\windows\\syswow64\\netsetupsvc.dll"))
26 | summarize FirstSeen = min(TimeGenerated), Processes=make_set(NewProcessName) by Computer, IPAddress

```

Results Chart

Completed 05:54.7 0 records

i No query was selected
Type a query and place the cursor anywhere in the query.
A query can contain line breaks, but no blank lines.

The screenshot shows the Microsoft Defender alert interface. The main alert is titled "ADFS private key extraction attempt" with a risk level of "High" and a status of "New". The alert details on the right include:

- Incident:** Multi-stage incident involving Execution & Credential access on one endpoint (open in Microsoft 365 Defender)
- Detection source:** EDR
- Detection technology:** Behavioral
- Detection status:** Detected
- Category:** CredentialAccess
- Techniques:** T1003: OS Credential Dumping, T1528: Steal Application Access Token
- First activity:** Jan 10, 2021, 7:09:02 PM
- Last activity:** Jan 10, 2021, 7:09:02 PM

The alert story on the left shows a sequence of events:

- [4280] SecurityHealthSystray.exe
- [7448] OneDrive.exe /background
- File create: dump_em_all.exe
- Suspicious file dropped (Medium)
- [7956] dump_em_all.exe
- Image load: dump_em_all.exe
- Suspicious file dropped (Medium)
- dump_em_all.exe ran an LDAP query (High)
- LDAP Search query: (&(thumbnailphoto=*)(objectClass=contact)(cn=CryptoPolicy))
- Distinguished name: CN=ADFS,CN=Microsoft,CN=Program Data,DC=ATPDC=local
- Action time: Jan 10, 2021, 7:09:02 PM
- ADFS private key extraction attempt (High)
- [7936] WerFault.exe -u -p 7956 -s 1428

“Possível tentativa de acesso a materiais importantes da ADFS” – detecta quando uma consulta suspeita de LDAP está buscando materiais confidenciais importantes no AD.

“Extração de chave privada do ADFS” – detecta padrões de ferramentas como ADFSDump.

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- General
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50.2M ↑ 13.3M Events

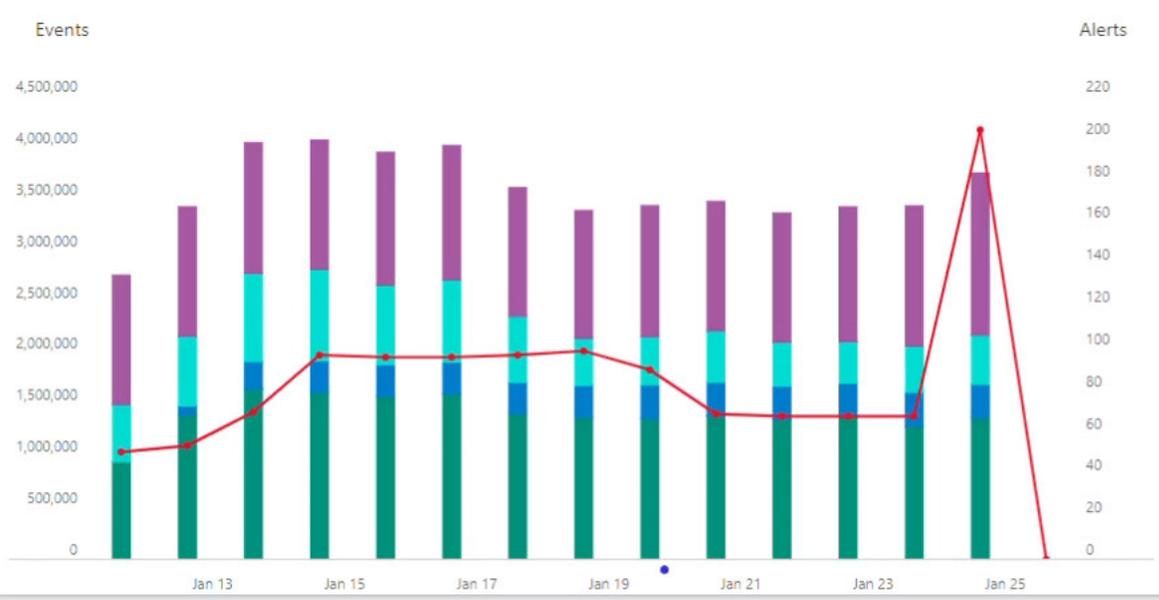
1.2K ↑ 517 Alerts

1.6K ↑ 938 Incidents

Incidents by status

New (1.6K) Active (6) Closed (True Positive) (1) Closed (False Positive) (1)

Events and alerts over time



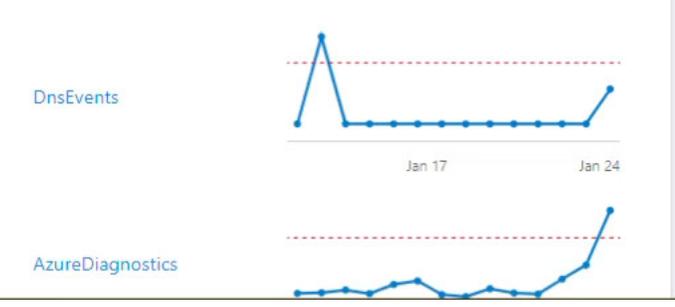
Potential malicious events



Recent incidents

Severity	Incident Name	Count
High	ADFS DKM Master Key Export	1 Aler
Medium	Azure activity matching known threats	1 Aler
Medium	TI map IP entity to AzureActivity (enriched)	2 Aler
Medium	Potential Password Spray	1 Aler
Medium	Time series anomaly detection for total v...	3 Aler

Data source anomalies



Azure Sentinel | Logs

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- General
- Overview
- Logs**
- News & guides
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 - Workbooks
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 - Threat intelligence (Preview)
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 - Data connectors
 - Analytics
 - Entity Settings (Preview)
 - Watchlist (Preview)
 - Playbooks
 - Community
 - Settings

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Azure Sentinel | Logs

Selected workspace: 'cybersecuritysoc'

Search (Ctrl+/)

New Query 1*

Feedback Queries Query explorer

- General
- Overview
- Logs**
- News & guides
- Threat management
- Incidents
- Workbooks
- Hunting
- Notebooks (Preview)
- Entity behavior
- Threat intelligence (Preview)
- Configuration
- Data connectors
- Analytics
- Entity Settings (Preview)
- Watchlist (Preview)
- Playbooks
- Community
- Settings

- CyberSecuritySOC
- Run Time range: Last 24 hours Save Copy link New alert rule Export Pin to dashboard Format query
- Tables Queries Filter
- Search
- Filter Group by: Solution
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```

16 AuditLogs
17 | where OperationName has_any ("Add service principal", "Certificates and secrets management") // captures "Add service principal",
"Add service principal credentials", and "Update application - Certificates and secrets management" events
18 | where Result == "success"
19 | mv-expand target = TargetResources
20 | where tostring(InitiatedBy.user.userPrincipalName) has "@" or tostring(InitiatedBy.app.displayName) has "@"
21 | extend targetDisplayName = tostring(TargetResources[0].displayName)
22 | extend targetId = tostring(TargetResources[0].id)
23 | extend targetType = tostring(TargetResources[0].type)
24 | extend keyEvents = TargetResources[0].modifiedProperties
25 | mv-expand keyEvents
26 | where keyEvents.displayName == "KeyDescription"
27 | extend new_value_set = parse_json(tostring(keyEvents.newValue))
28 | extend old_value_set = parse_json(tostring(keyEvents.oldValue))
29 | where old_value_set == "[]"
30 | parse new_value_set with * "KeyIdentifier=" keyIdentifier:string ",KeyType=" keyType:string ",KeyUsage=" keyUsage:string ",

```

Results Chart

Completed 00:05.6 0 records

i No query was selected
Type a query and place the cursor anywhere in the query.
A query can contain line breaks, but no blank lines.

Microsoft Azure (Preview) Search resources, services, and docs (G+)

Home > Azure Sentinel workspaces > Azure Sentinel

Azure Sentinel | Logs

Selected workspace: 'cybersecuritysoc'

Search (Ctrl+/) New Query 1* CyberSecuritySOC

```

27 | join (
28 | OfficeActivity
29 | where TimeGenerated > ago(7d)
30 | where OfficeWorkload ~ "Exchange" and Operation ~ "MailItemsAccessed" and ResultStatus ~ "Succeeded"
31 | extend timekey = bin(TimeGenerated, 1h)
32 | on $left:TimeGenerated == $right:timekey
33 | project-away Total, baseline, RecordType, timekey, TimeGenerated
34 | project-reorder TimeGenerated1, anomalies, Operation, UserId, Client_IPAddress, UserAgent

```

Results Chart Columns Add bookmark Display time (UTC+00:00) Group columns

Completed 00:00.8 8 records

TimeGenerated1 [UTC]	anomalies	Operation	UserId	Client_IPAddress	score	Organizationid	Orga
1/20/2021, 4:57:35.000 AM	1	MailItemsAccessed	MeganB@seccxp.ninja	34.207.252.21	1.667	4b2462a4-bbee-495a-a0e1-f23ae524cc9c	4b24
1/20/2021, 4:57:35.000 AM	1	MailItemsAccessed	MeganB@seccxp.ninja	34.207.252.21	1.667	4b2462a4-bbee-495a-a0e1-f23ae524cc9c	4b24
1/20/2021, 4:40:23.000 AM	1	MailItemsAccessed	MeganB@seccxp.ninja	174.129.96.41	1.667	4b2462a4-bbee-495a-a0e1-f23ae524cc9c	4b24
1/20/2021, 4:40:23.000 AM	1	MailItemsAccessed	MeganB@seccxp.ninja	174.129.96.41	1.667	4b2462a4-bbee-495a-a0e1-f23ae524cc9c	4b24
1/21/2021, 8:07:28.000 AM	1	MailItemsAccessed	MeganB@seccxp.ninja	3.9457.166	1.452	4b2462a4-bbee-495a-a0e1-f23ae524cc9c	4b24
1/21/2021, 8:07:28.000 AM	1	MailItemsAccessed	MeganB@seccxp.ninja				
1/21/2021, 8:37:48.000 AM	1	MailItemsAccessed	MeganB@seccxp.ninja				
1/21/2021, 8:37:48.000 AM	1	MailItemsAccessed	MeganB@seccxp.ninja				

Microsoft Azure (Preview) Search resources, services, and docs (G+)

Home > Azure Sentinel workspaces > Azure Sentinel

Azure Sentinel | Logs

Selected workspace: 'cybersecuritysoc'

Search (Ctrl+/) New Query 1* CyberSecuritySOC

```

14 | //| mv-expand total to typeof(double), TimeGenerated to typeof(datetime), anomalies to typeof(double), score to typeof(double),
15 | baseline to typeof(long)
16 | //| where anomalies > 0
17 |
18 | let TimeSeriesAlerts = TimeSeriesData
19 | | extend (anomalies, score, baseline) = series_decompose_anomalies(Total, scorethreshold, -1, 'linefit')
20 | mv-expand Total to typeof(double), TimeGenerated to typeof(datetime), anomalies to typeof(double), score to typeof(double),
21 | TimeSeriesAlerts
22 | render timechart

```

Results Chart Display time (UTC+00:00)

Completed 00:00.7 264 records

Chart Formatting

Legend: Total (blue line), anomalies (red line)

Azure Sentinel | Workbooks

Selected workspace: 'cybersecuritysoc'

Search (Ctrl+/) Refresh Add workbook

- General
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82 Saved workbooks 86 Templates 0 Updates

My workbooks Templates Search

- SolarWinds Post Compromise Hunting MICROSOFT
- Syslog Workbook
- Sysmon Threat Hunting AZURE SENTINEL COMMUNITY
- Teams Collaboration Graph
- Threat Intelligence MICROSOFT
- TSGGuide1
- User And Entity Behavior Analytics MICROSOFT
- Users Travel Map
- Visualizations Demo

SolarWinds Post Compromise Hunting

MICROSOFT

This hunting workbook is intended to help identify activity related to the Solorigate compromise and subsequent attacks discovered in December 2020

Required data types: ⓘ

- ✓ CommonSecurityLog
- ✓ SigninLogs
- ✓ AuditLogs
- ✓ AADServicePrincipalSignInLogs
- ✓ OfficeActivity
- ✓ BehaviorAnalytics
- ✓ SecurityEvent
- ✓ DeviceProcessEvents
- ✓ SecurityAlert
- ✓ DnsEvents

Relevant data connectors: ⓘ

- AzureActiveDirectory
- SecurityEvents
- Office365
- MicrosoftThreatProtection
- DNS

SolarWinds Post Compromise Hunting ⓘ

The hunting workbook is intended to help identify activity related to the Solorigate compromise and subsequent attacks discovered in December 2020.

SolarWinds Post Compromise Hunting

cybersecuritysoc
Edit Save Refresh Share Like

Solorigate Post Compromise Hunting

This hunting workbook is intended to help identify activity related to the SolarWinds compromise and subsequent attacks discovered in December 2020. This activity is referred to as Solorigate and UNC2452. More details can be found in the following reports:

- <https://aka.ms/solorigate>
- <https://aka.ms/sentinel-solorigate-hunt>
- <https://techcommunity.microsoft.com/t5/azure-active-directory-identity/understanding-quot-solorigate-quot-s-identity-iocs-for-identity/ba-p/2007610>
- <https://www.microsoft.com/security/blog/2020/12/21/advice-for-incident-responders-on-recovery-from-systemic-identity-compromises/>
- <https://www.fireeye.com/blog/threat-research/2020/12/evasive-attacker-leverages-solarwinds-supply-chain-compromises-with-sunburst-backdoor.html>
- <https://www.fireeye.com/blog/products-and-services/2020/12/global-intrusion-campaign-leverages-software-supply-chain-compromise.html>
- <https://www.solarwinds.com/securityadvisory>
- <https://www.microsoft.com/security/blog/2021/01/20/deep-dive-into-the-solorigate-second-stage-activation-from-sunburst-to-teardrop-and-raindrop/>
- <https://www.fireeye.com/content/dam/collateral/en/wp-m-unc2452.pdf>

- Suspicious Signins
- Suspicious App Modifications
- Suspicious Lateral Movement
- Suspicious Host Activity
- Suspicious Network Activity

Suspicious Signin Activity

Suspicious Signins

This section hunts for suspicious sign-in events within your Azure AD tenant. It takes TTPs reported by Microsoft, FireEye and the NSA to identify logon events from known VPS provider IP ranges where the only logons using SAML tokens provided by external identity providers, or refresh tokens have been used. This helps identify instances where an attacker is using SAML tokens minted by stolen ADFS key material to access your environment and bypass MFA. This hunting query may produce false positive if users are accessing services via VPN services.

Select a user session in the initial query to populate the further queries that provide context on the users other logon activity, this is to help distinguish legitimate logons from malicious ones.

Hunting Timeframe ⓘ : Last 30 days ▾

i Set the timeframe you wish to hunt in using the dropdown to the right. Note that using a large timeframe may cause queries to timeout depending on the size of your environment. If you have difficulties try reducing your timeframe.

Successful User Signins from VPS providers where only Tokens were used to authenticate.

IPAddress	UserPrincipalName	StartTime	EndTime
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Usar o Azure
Sentinel e o GitHub



Série de vídeos sobre o Solorigate

Próximas Etapas

- 01.** Assista à série de vídeos sobre o Solorigate neste local
- 02.** Confira mais atualizações na Segurança da Microsoft:
www.microsoft.com/pt-br/security/business
- 03.** Leia as postagens no blog em:
www.microsoft.com/security/blog

<https://aka.ms/solorigate>

