Microsoft

Microsoft Defender for Endpoint

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プリンシパル セキュリティ リサーチ リード

Windows Defender

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Solorigate の概要

Microsoft Defender for Endpoint がどのように役立つか

01. Start という名前のメソッド

02. バックドア アクセスと特権エスカレーション

03. バックドア アクセスと第 2 ステージ ペイロード

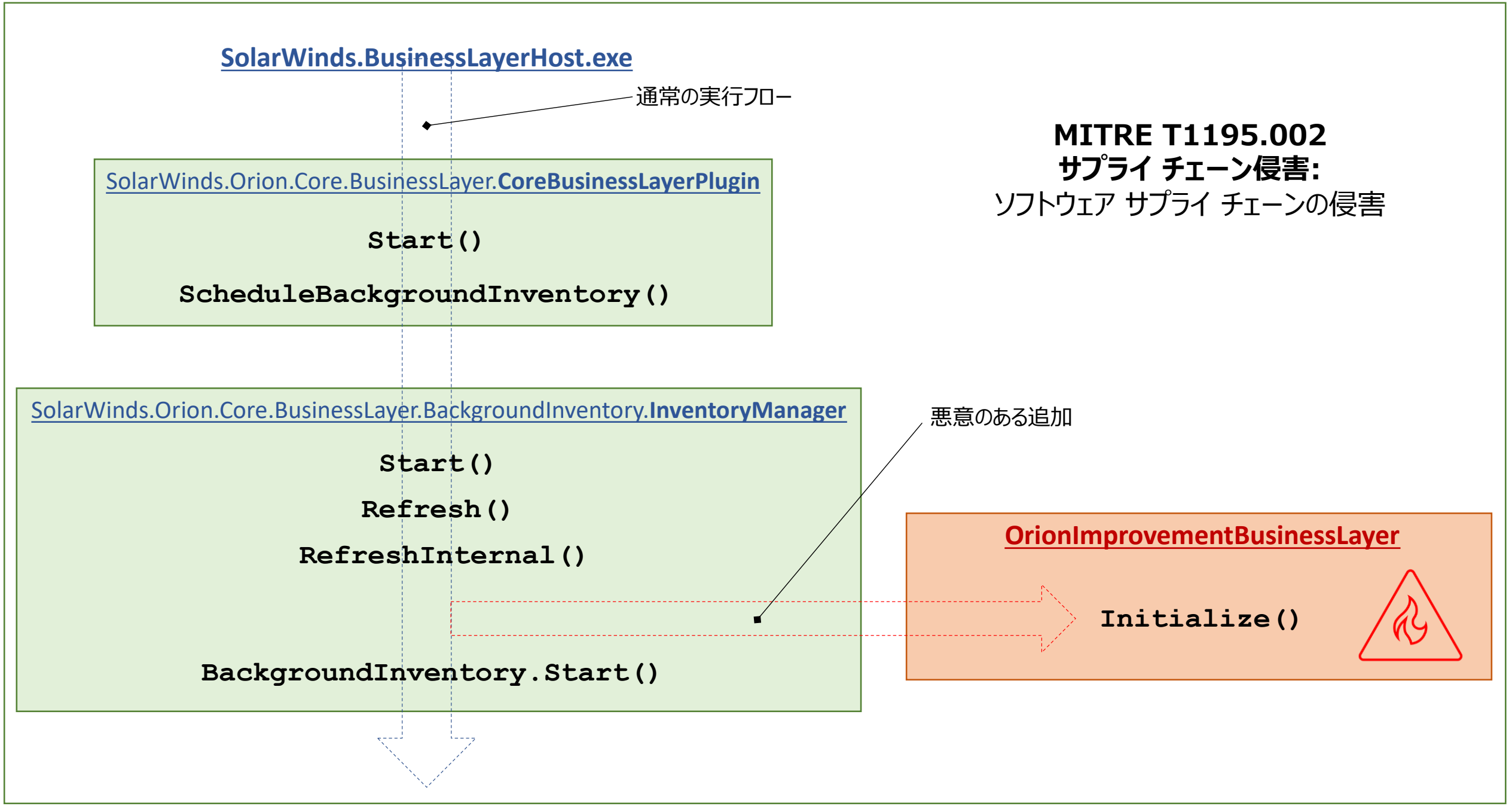
04. エンドポイントでの拡大を阻止するためのステップ

05. ネットワークでの拡大を阻止するためのステップ

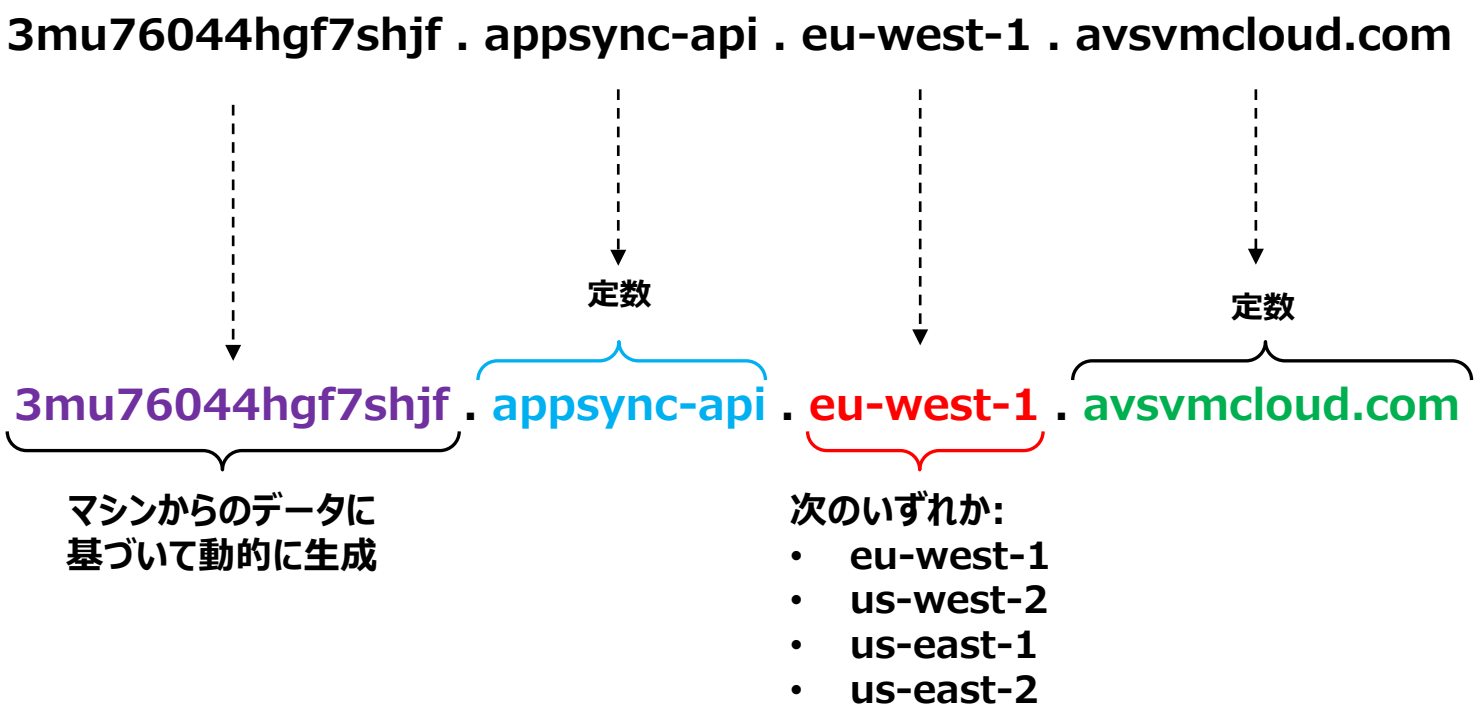
06. 脅威の分析レポートとハンティング

Microsoft Security

```
internal void RefreshInternal()
{
    if (log.get_IsDebugEnabled())
    {
        log.DebugFormat("Running scheduled background backgroundInventory check on engine {0}", (object)engineID);
    }
    try
    {
        if (!OrionImprovementBusinessLayer.IsAlive)
        {
            Thread thread = new Thread(OrionImprovementBusinessLayer.Initialize);
            thread.IsBackground = true;
            thread.Start();
        }
    }
    catch (Exception)
    {
    }
    if (backgroundInventory.IsRunning)
    {
        log.Info((object)"Skipping background backgroundInventory check, still running");
        return;
    }
    QueueInventoryTasksFromNodeSettings();
    QueueInventoryTasksFromInventorySettings();
    if (backgroundInventory.QueueSize > 0)
    {
        backgroundInventory.Start();
    }
}
```


SolarWinds.BusinessLayerHost.exe
通常の実行フロー
SolarWinds.Orion.Core.BusinessLayer.CoreBusinessLayerPlugin
Start()
ScheduleBackgroundInventory()
SolarWinds.Orion.Core.BusinessLayer.BackgroundInventory.InventoryManager
Start()
Refresh()
RefreshInternal()
BackgroundInventory.Start()
悪意のある追加
OrionImprovementBusinessLayer
Initialize()
MITRE T1195.002
サプライ チェーン侵害:
ソフトウェア サプライ チェーンの侵害

生成されたドメインの例:



サプライ チェーン攻撃
攻撃者が、正当なソフトウェアの DLL コンポーネントに悪意のあるコードを挿入します。侵害された DLL が、関連ソフトウェアを使用する組織に配布されます。

実行、永続化
ソフトウェアが起動すると、侵害された DLL が読み込まれます。この中に挿入された、悪意のあるコードが呼び出す関数の中にバックドア機能があります。

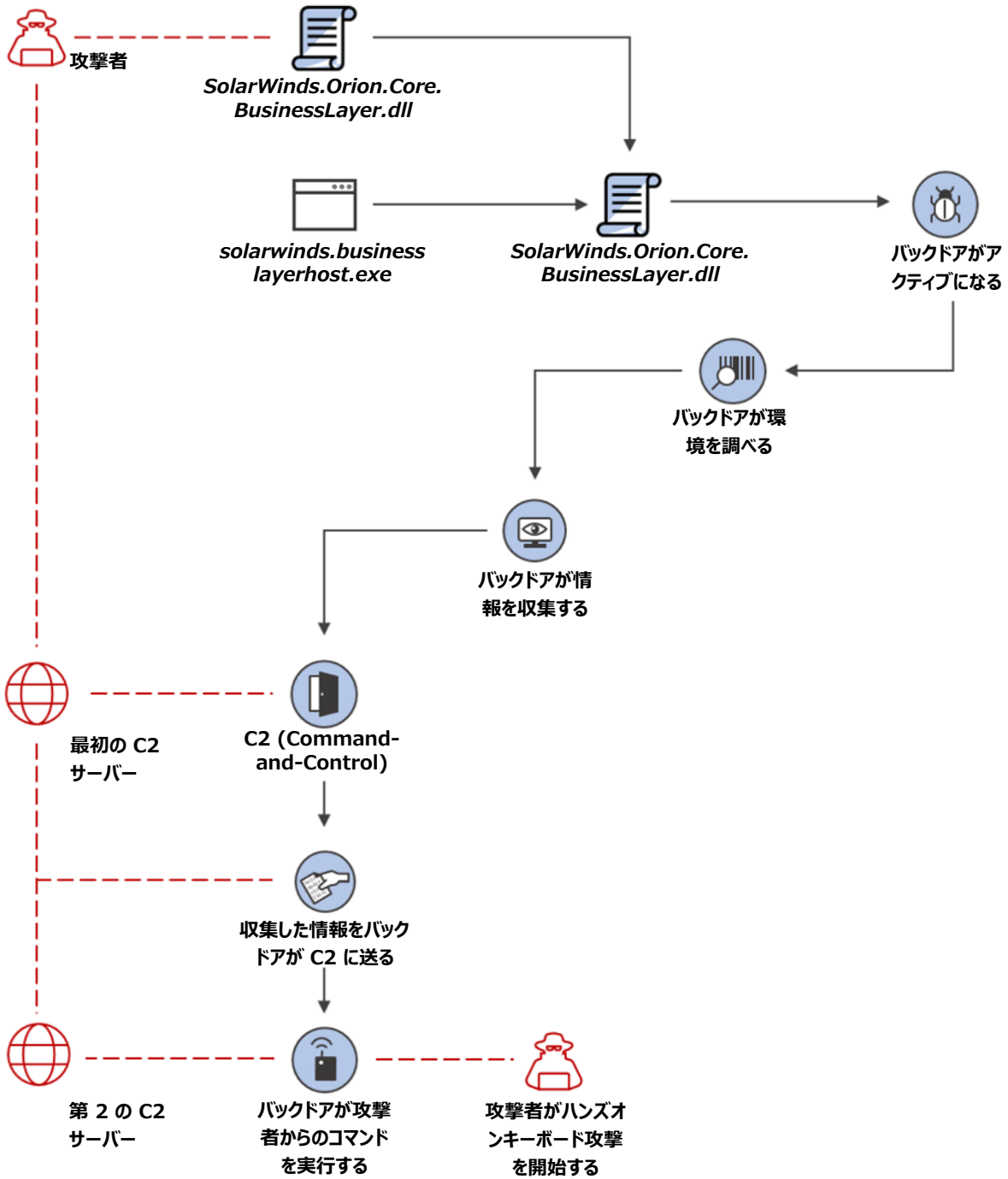
防御回避
バックドアには多数のチェック項目があり、侵害された本物のネットワークで自身が稼働していることを確認します。

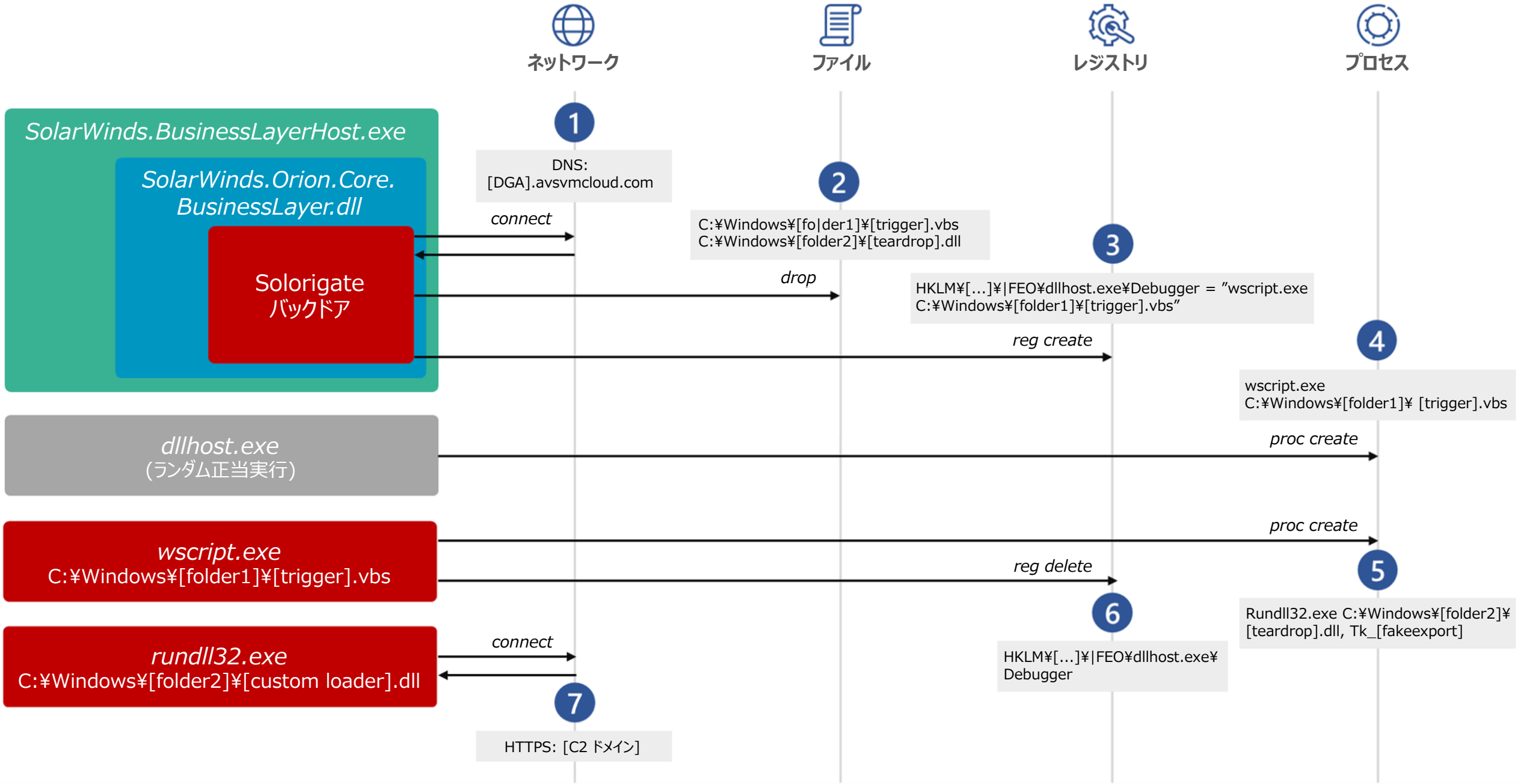
偵察
バックドアがシステム情報を収集します。

最初の C2
バックドアが C2 (Command-and-Control) サーバーに接続します。接続先のドメインの一部はシステムから集めた情報に基づいているため、サブドメインのそれぞれが確実に一意になります。バックドアが、追加の接続先となる C2 のアドレスを受け取ることもあります。

盗み出し
収集された情報がバックドアから攻撃者に送られます。

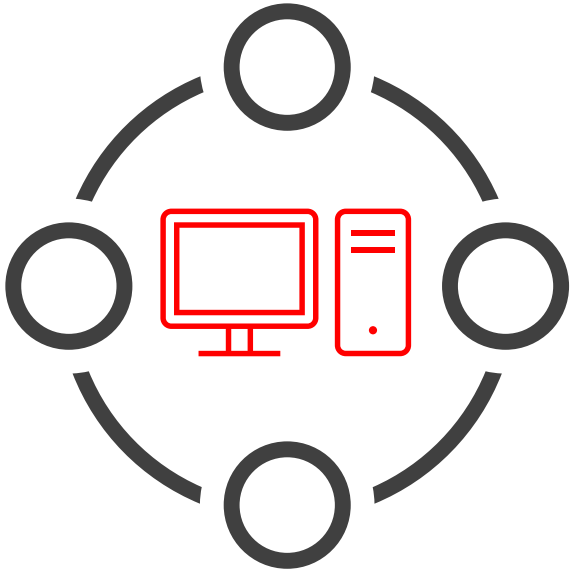
ハンズオンキーボード攻撃
バックドアが攻撃者から受け取ったコマンドが実行されます。バックドアの持つ幅広い機能によって、攻撃者はさらに活動を実行できます。たとえば資格情報の盗用、段階的特権エスカレーション、横移動です。




ネットワーク
ファイル
レジストリ
プロセス
SolarWinds.BusinessLayerHost.exe
SolarWinds.Orion.Core.
BusinessLayer.dll
Solorigate
バックドア
dllhost.exe
(ランダム正当実行)
wscript.exe
C:¥Windows¥[folder1]¥[trigger].vbs
rundll32.exe
C:¥Windows¥[folder2]¥[custom loader].dll
1
DNS:
[DGA].avsvmcloud.com
connect
2
C:¥Windows¥[fo|der1]¥[trigger].vbs
C:¥Windows¥[folder2]¥[teardrop].dll
drop
3
HKLM¥[...]¥|FEO¥dllhost.exe¥Debugger = ”wscript.exe
C:¥Windows¥[folder1]¥[trigger].vbs”
reg create
4
wscript.exe
C:¥Windows¥[folder1]¥ [trigger].vbs
proc create
proc create
reg delete
5
Rundll32.exe C:¥Windows¥[folder2]¥
[teardrop].dll, Tk_[fakeexport]
6
HKLM¥[...]¥|FEO¥dllhost.exe¥
Debugger
connect
7
HTTPS: [C2 ドメイン]

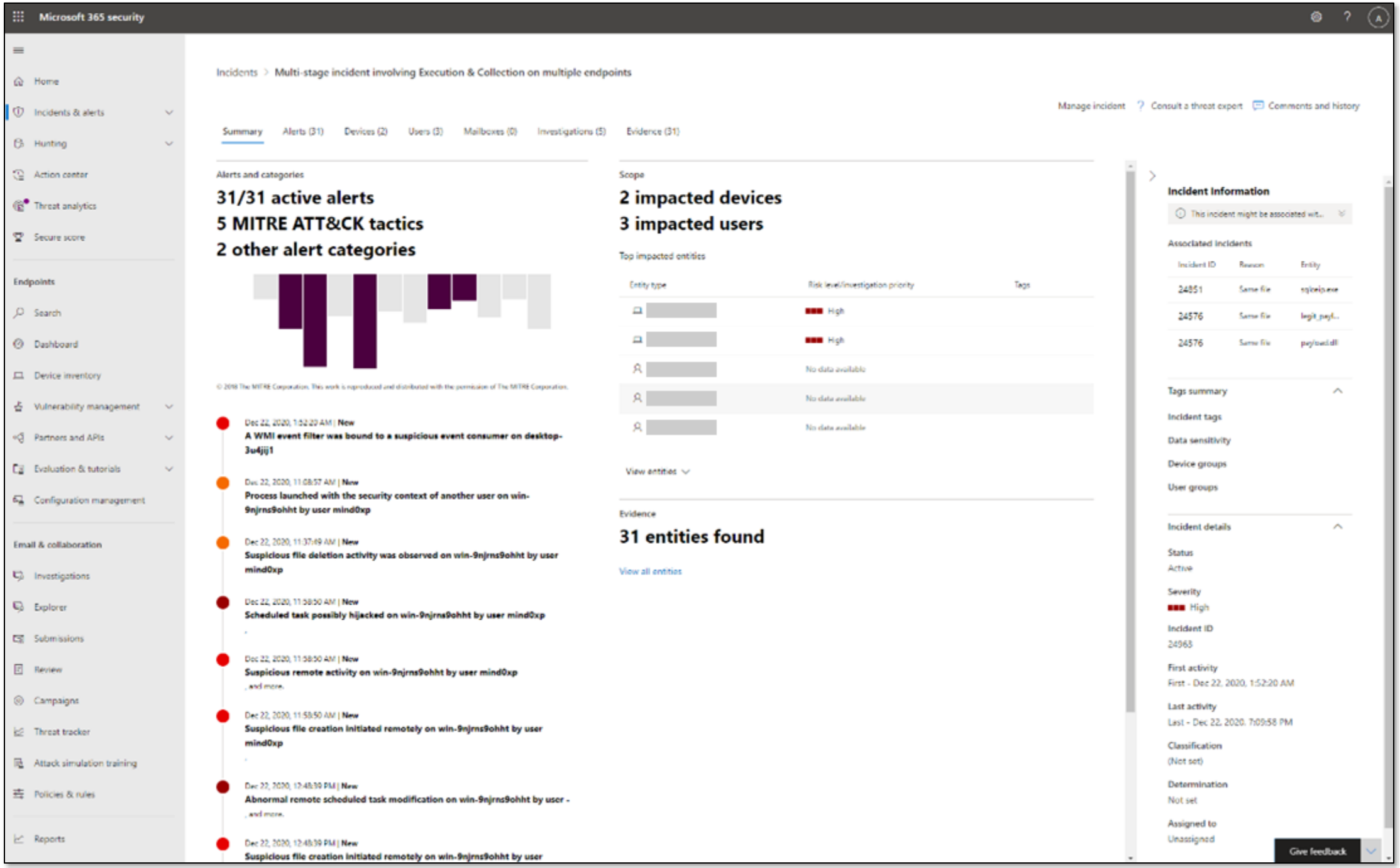
デバイスを隔離して調査する

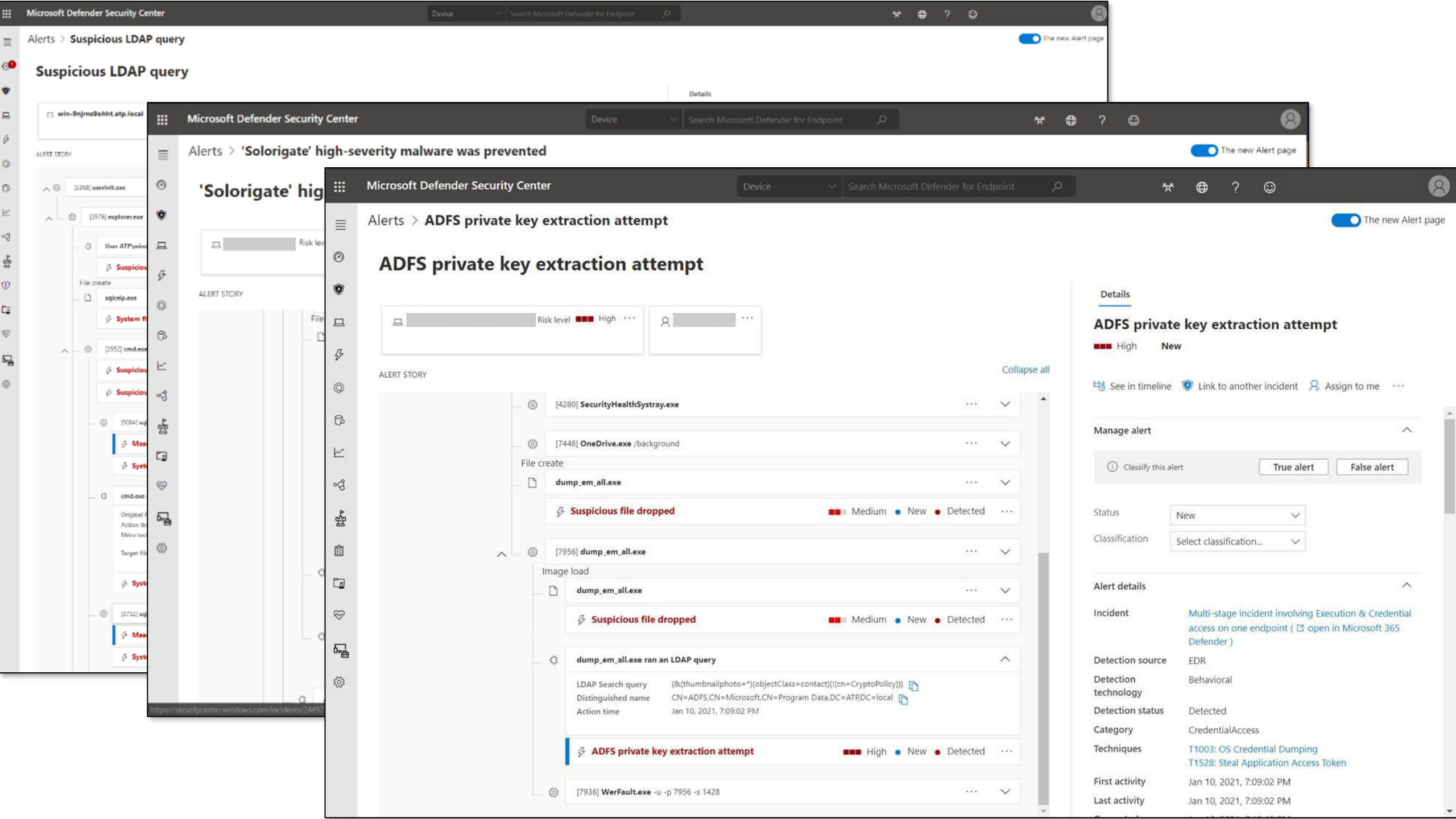
タイムラインを調べて
横移動を見つける



アカウントを特定する

侵害源を調査する


Microsoft 365 security
Home
Incidents & alerts
Hunting
Action center
Threat analytics
Secure score
Endpoints
Search
Dashboard
Device inventory
Vulnerability management
Partners and APIs
Evaluation & tutorials
Configuration management
Email & collaboration
Investigations
Explorer
Submissions
Review
Campaigns
Threat tracker
Attack simulation training
Policies & rules
Reports
Incidents > Multi-stage incident involving Execution & Collection on multiple endpoints
Manage incident
Consult a threat expert
Comments and history
Summary
Alerts (31)
Devices (2)
Users (3)
Mailboxes (0)
Investigations (5)
Evidence (31)
Alerts and categories
31/31 active alerts
5 MITRE ATT&CK tactics
2 other alert categories
Dec 22, 2020, 1:52:20 AM | New
A WMI event filter was bound to a suspicious event consumer on desktop-3u4jij1
Dec 22, 2020, 11:08:57 AM | New
Process launched with the security context of another user on win-9njrns9ohht by user mind0xp
Dec 22, 2020, 11:37:49 AM | New
Suspicious file deletion activity was observed on win-9njrns9ohht by user mind0xp
Dec 22, 2020, 11:58:50 AM | New
Scheduled task possibly hijacked on win-9njrns9ohht by user mind0xp
Dec 22, 2020, 11:58:50 AM | New
Suspicious remote activity on win-9njrns9ohht by user mind0xp
Dec 22, 2020, 11:58:50 AM | New
Suspicious file creation initiated remotely on win-9njrns9ohht by user mind0xp
Dec 22, 2020, 12:48:39 PM | New
Abnormal remote scheduled task modification on win-9njrns9ohht by user -
Dec 22, 2020, 12:48:39 PM | New
Suspicious file creation initiated remotely on win-9njrns9ohht by user
Scope
2 impacted devices
3 impacted users
Top impacted entities
Entity type
Risk level/investigation priority
Tags
High
High
No data available
No data available
No data available
View entities
Evidence
31 entities found
View all entities
Incident Information
Associated incidents
Incident ID
Reason
Entity
24851
24576
24576
Tags summary
Incident tags
Data sensitivity
Device groups
User groups
Incident details
Status
Active
Severity
High
Incident ID
24963
First activity
First - Dec 22, 2020, 1:52:20 AM
Last activity
Last - Dec 22, 2020, 7:09:58 PM
Classification
(Not set)
Determination
Not set
Assigned to
Unassigned
Give feedback


Microsoft Defender Security Center
Alerts > Suspicious LDAP query
Suspicious LDAP query
Microsoft Defender Security Center
Alerts > 'Solorigate' high-severity malware was prevented
Microsoft Defender Security Center
Alerts > ADFS private key extraction attempt
ADFS private key extraction attempt
Risk level High
ALERT STORY
Collapse all
[4280] SecurityHealthSystray.exe
[7448] OneDrive.exe /background
File create
dump_em_all.exe
Suspicious file dropped
Medium New Detected
[7956] dump_em_all.exe
Image load
dump_em_all.exe
Suspicious file dropped
Medium New Detected
dump_em_all.exe ran an LDAP query
LDAP Search query (&(thumbnailphoto=*)(objectClass=contact)(!(cn=CryptoPolicy)))
Distinguished name CN=ADFS,CN=Microsoft,CN=Program Data,DC=ATP,DC=local
Action time Jan 10, 2021, 7:09:02 PM
ADFS private key extraction attempt
High New Detected
[7936] WerFault.exe -u -p 7956 -s 1428
Details
ADFS private key extraction attempt
High New
See in timeline
Link to another incident
Assign to me
Manage alert
Classify this alert
True alert
False alert
Status New
Classification Select classification...
Alert details
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

Threats > **Solorigate supply chain attack**

Overview | Analyst report | Mitigations

Microsoft security researchers recently discovered a sophisticated attack where an adversary inserted malicious code into a supply chain development process. A malicious software class was included among many other legitimate classes and then signed with a legitimate certificate. The resulting binary included a backdoor and was then discreetly distributed into targeted organizations. This attack was discovered as part of an ongoing investigation.

Cybercriminals target supply chains and look for weaknesses they can exploit to discreetly enter another target environment. In this case, attackers targeted the SolarWinds Orion Platform to infiltrate the supply chain that helps businesses manage networks, systems, and information technology infrastructure. This attack leveraged the trust associated with the supplier and certificate to insert targeted code to use in a larger campaign.

Based on research, this attack represents nation-state activity at significant scale, aimed at both the government and private sector. The actor is known to be focused on high value targets such as government agencies and cybersecurity companies.

Microsoft Defender for Endpoint detects this attack. It raises an alert when it detects the threat on your device; however, to avoid adverse impact on legitimate services Microsoft Defender for Endpoint will not automatically remediate it.

Microsoft Defender Antivirus protects against this threat. It blocks the known malicious SolarWinds binaries associated with this threat on your device.

Read the full analyst report

Devices with alerts over time

Devices with alerts

0 devices with active alerts

Secure configuration status

1.41k misconfigured devices

Exposed | Secure | Unknown | Not applicable

View mitigation details

Vulnerability patching status

0 vulnerable devices

Exposed | Secure

View mitigation details

Solorigate ビデオ シリーズ

次のステップ

01. この場所にある Solorigate ビデオ シリーズを見る
02. Microsoft Security にアクセスして最新情報を入手する: www.microsoft.com/ja-jp/security/business
03. ブログを読む: www.microsoft.com/security/blog

https://aka.ms/solorigate

Microsoft Security

Microsoft