Forensics - Registry Furensics

Day 16

Learn what the Windows Registry is and how to investigate it.

- Investigate the Gifts Delivery Malfunctioning

Investigate the Gifts Delivery Malfunctioning

Overview

Room URL: https://tryhackme.com/room/registry-forensics-aoc2025-h6k9j2l5p8

Difficulty: Medium

Category: Forensics

Date Completed: 12/16/2025

Objectives

- Understand what the Windows Registry is and what it contains.
- Dive deep into Registry Hives and Root Keys.
- Analyze Registry Hives through the built-in Registry Editor tool.
- Learn Registry Forensics and investigate through the Registry Explorer tool.

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Introduction

Just as your brain stores everything you need to function—your behaviors, habits, and memories—the Windows operating system relies on its own "brain" to maintain its configurations and operations. This digital brain is known as the **Windows Registry**, a sophisticated hierarchical database that stores critical system information, user preferences, and application settings. Unlike

a human brain confined to one location, the Windows Registry is distributed across multiple files called **Hives**, each specializing in different aspects of system configuration. Understanding the Registry is essential for cybersecurity professionals, particularly in forensic investigations where the Registry often contains the smoking gun evidence of compromise, unauthorized access, and malicious activity. In this challenge, you'll investigate the compromised `dispatch-srv01` system using Registry forensics to uncover the artifacts of the TBFC intrusion that began on October 21st, 2025.

Registry Data

Hive Name	Contains	Location
SYSTEM	- Services - Mounted Devices - Boot Configuration - Drivers - Hardware	`C:\Windows\System32\config\SYSTEM`
SECURITY	- Local Security Policies - Audit Policy Settings	`C:\Windows\System32\config\SECURITY`
SOFTWARE	- Installed Programs - OS Version and other info - Autostarts - Program Settings	`C:\Windows\System32\config\SOFTWARE`
SAM	- Usernames and their Metadata - Password Hashes - Group Memberships - Account Statuses	`C:\Windows\System32\config\SAM`
NTUSER.DAT	- Recent Files - User Preferences - User-specific Autostarts	`C:\Users\username\NTUSER.DAT`
USRCLASS.DAT	- Shellbags - Jump Lists	`C:\Users\username\AppData\Local\Microsoft\Windows\USRCLASS.DAT`

Registry Keys

Registry Key	Importance

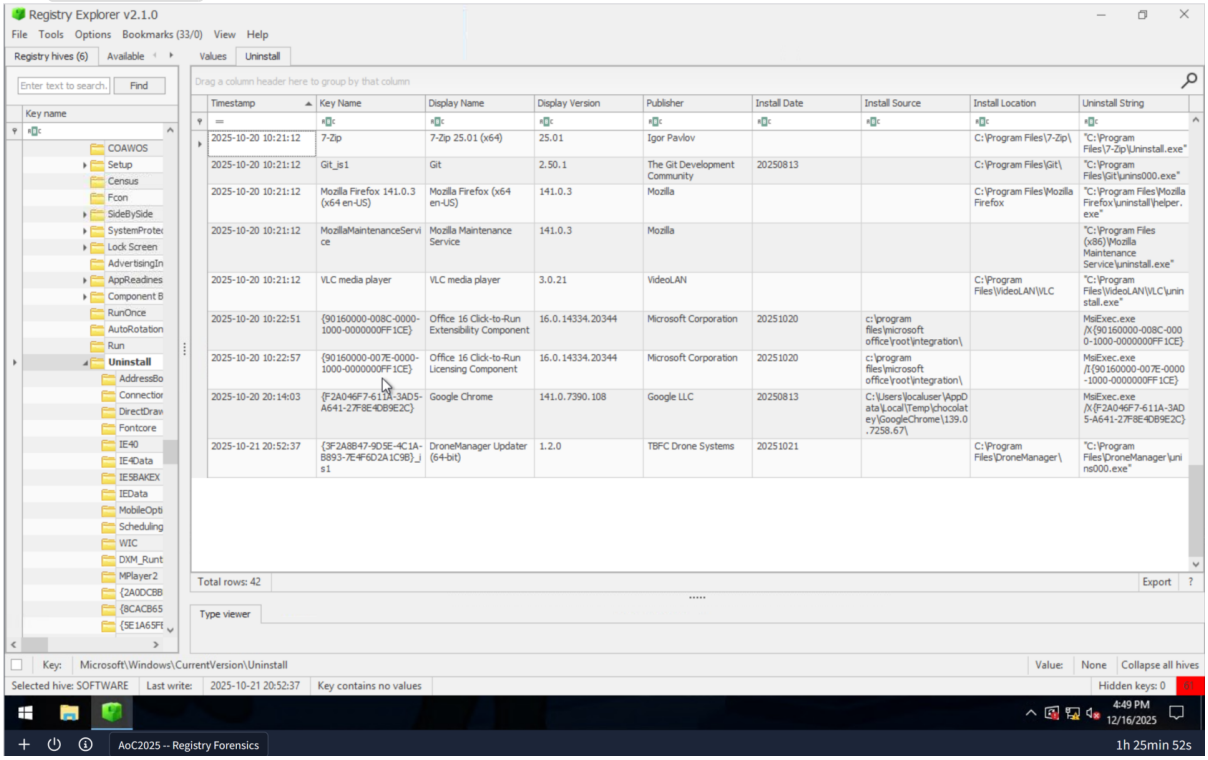
`HKCU\Software\Microsoft\Windows\CurrentVersion\Explorer\UserAssist`	It stores information on recently accessed applications launched via the GUI.
`HKCU\Software\Microsoft\Windows\CurrentVersion\Explorer\TypedPaths`	It stores all the paths and locations typed by the user inside the Explorer address bar.
`HKLM\Software\Microsoft\Windows\CurrentVersion\App Paths`	It stores the path of the applications.
`HKCU\Software\Microsoft\Windows\CurrentVersion\Explorer\WordWheelQuery`	It stores all the search terms typed by the user in the Explorer search bar.
`HKLM\Software\Microsoft\Windows\CurrentVersion\Run`	It stores information on the programs that are set to automatically start (startup programs) when the users logs in.
`HKCU\Software\Microsoft\Windows\CurrentVersion\Explorer\RecentDocs`	It stores information on the files that the user has recently accessed.
`HKLM\SYSTEM\CurrentControlSet\Control\ComputerName\ComputerName`	It stores the computer's name (hostname).
`HKLM\SOFTWARE\Microsoft\Windows\CurrentVersion\Uninstall`	It stores information on the installed programs.

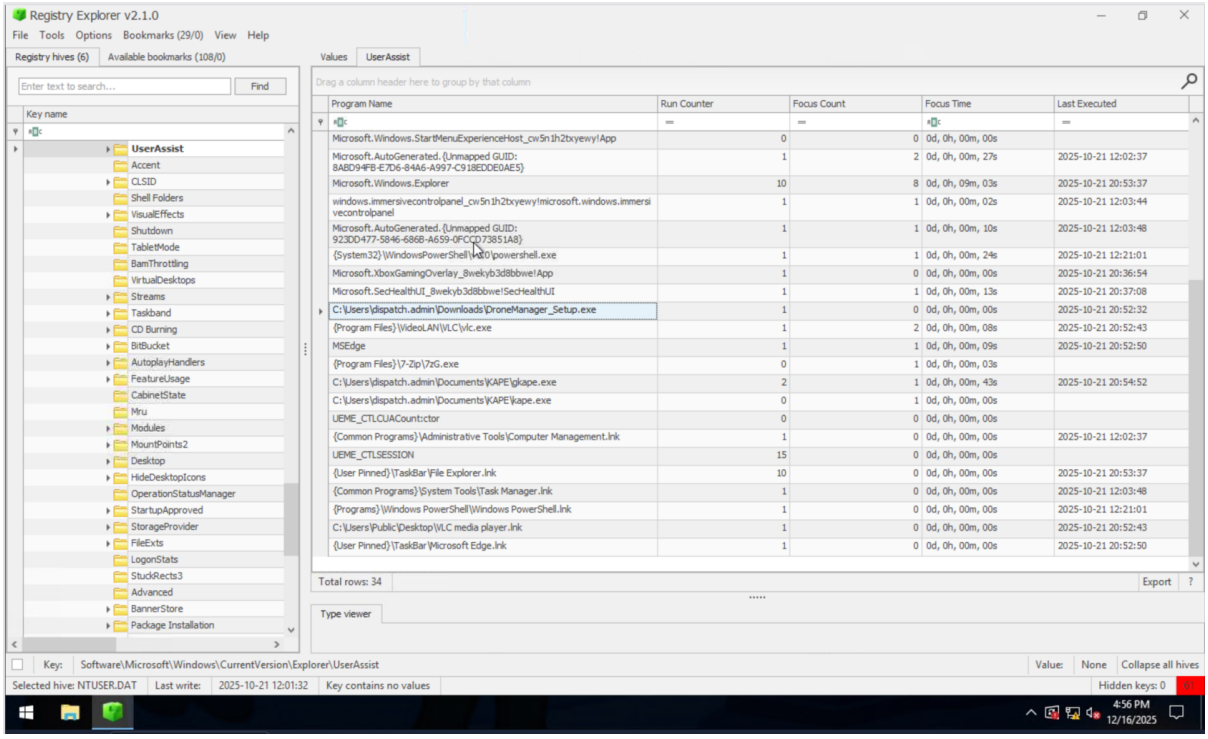
Challenge Specific Locations

Hive on Disk	Where You See It in Registry Editor
SYSTEM	`HKEY_LOCAL_MACHINE\SYSTEM`
SECURITY	`HKEY_LOCAL_MACHINE\SECURITY`
SOFTWARE	`HKEY_LOCAL_MACHINE\SOFTWARE`
SAM	`HKEY_LOCAL_MACHINE\SAM`
NTUSER.DAT	`HKEY_USERS\<SID> and HKEY_CURRENT_USER`
USRCLASS.DAT	`HKEY_USERS\<SID>\Software\Classes`

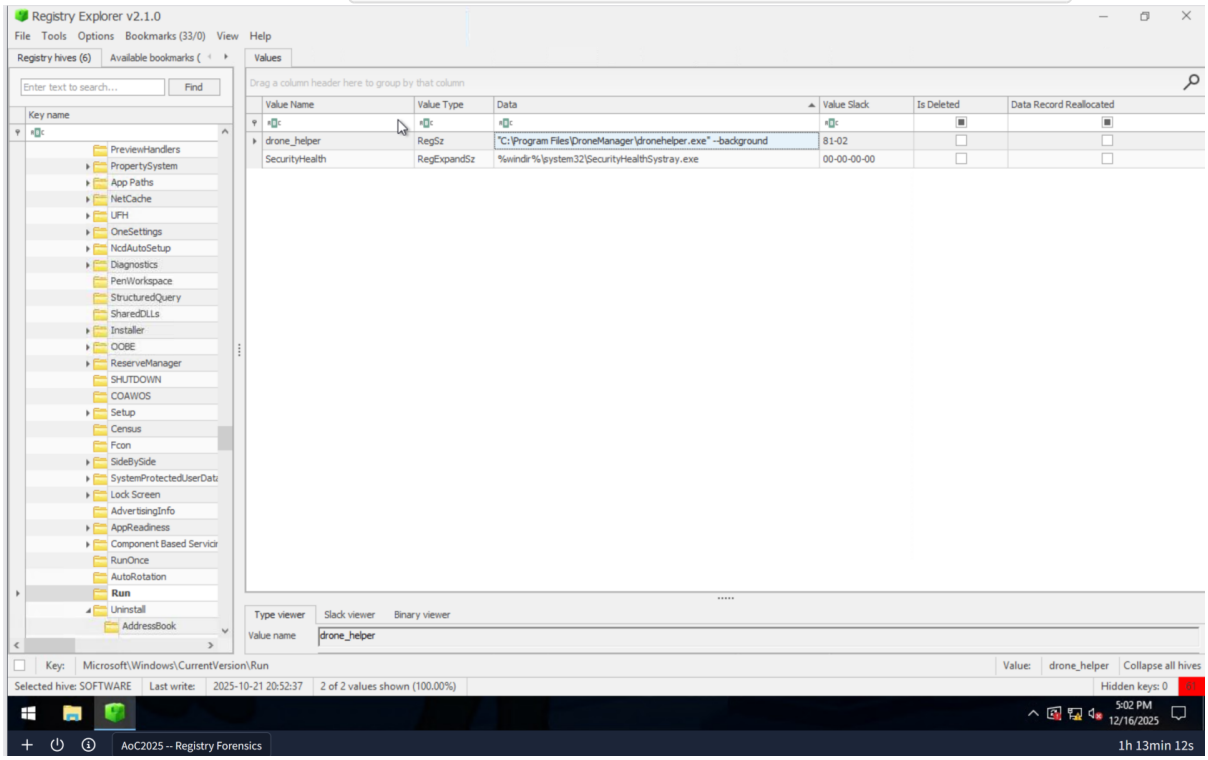
Walk Through

1. Start the target machine
2. What application was installed on the `dispatch-srv01` before the abnormal activity started?
    1. The installed programs are listed in `HKLM\Software\Microsoft\Windows\CurrentVersion\Uninstall`

2. I then sorted the table by timestamp . There was one program installed or modified on `10/21/2025`
3. 

3. What is the full path where the user launched the application (found in question 1) from?
    1. At first I checked `HKCU\Software\Microsoft\Windows\CurrentVersion\Explorer\RecentDocs` to see if it was launched from there. It was not.
    2. Then I checked `HKCU\Software\Microsoft\Windows\CurrentVersion\Explorer\UserAssist` That is where it was launched from.
    3. 

4. Which value was added by the application to maintain persistence on startup?

1. The start up keys are at `HKLM\Software\Microsoft\Windows\CurrentVersion\Run`
2. 

Lessons Learned

- ○ **Registry Forensics as a Detection Method:** The Windows Registry is a rich source of forensic evidence, containing timestamps and execution paths that reveal when and how malicious applications were introduced to a system. By systematically examining key registry locations like `Uninstall`, `UserAssist`, and `Run`, investigators can reconstruct the exact timeline and methods of compromise.
- **Persistence Mechanisms and Registry Startup Keys:** Attackers leverage registry startup keys (`HKLM\Software\Microsoft\Windows\CurrentVersion\Run`) to maintain persistence, ensuring their malware survives system reboots. Identifying these persistence values is critical for both incident response and system hardening, allowing defenders to remove malicious entries and prevent reinfection.

Resources

TryHackMe

Registry Explorer

RegSeek

Cheat Sheet