Detecting Attempts to Steal Passwords from Memory

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An adversary can harvest credentials from the Local Security Authority Subsystem Service (LSASS) process in memory once they have administrative or SYSTEM privileges.

Credential Dumping is MITRE ATT&CK Technique T1003.

This post provides the steps to configure Sysmon to log processes accessing the `lsass.exe` process. Once this logging is configured, you can monitor for suspicious processes accessing `lsass.exe`, which could be indicative of credential dumping activity.

Note, if you decide to implement any of the monitoring and detection detailed in this post in a production environment, it's likely that some tuning will be required to filter benign or expected behavior.

Install and Configure Sysmon

Download Sysmon: https://technet.microsoft.com/en-us/sysinternals/sysmon

Create a file named `sysmon_config.xml` and copy the configuration below into the file.

<Sysmon schemaversion=”4.1">
<HashAlgorithms>SHA256</HashAlgorithms>
<EventFiltering>
<ProcessAccess default=”include”>
</ProcessAccess >
</EventFiltering>
</Sysmon>

Install Sysmon using the configuration file you created:

```
sysmon64.exe -i .\sysmon_config.xml
```

Validate that the configuration has been applied by dumping the current sysmon configuration:

```
sysmon64.exe -c
```

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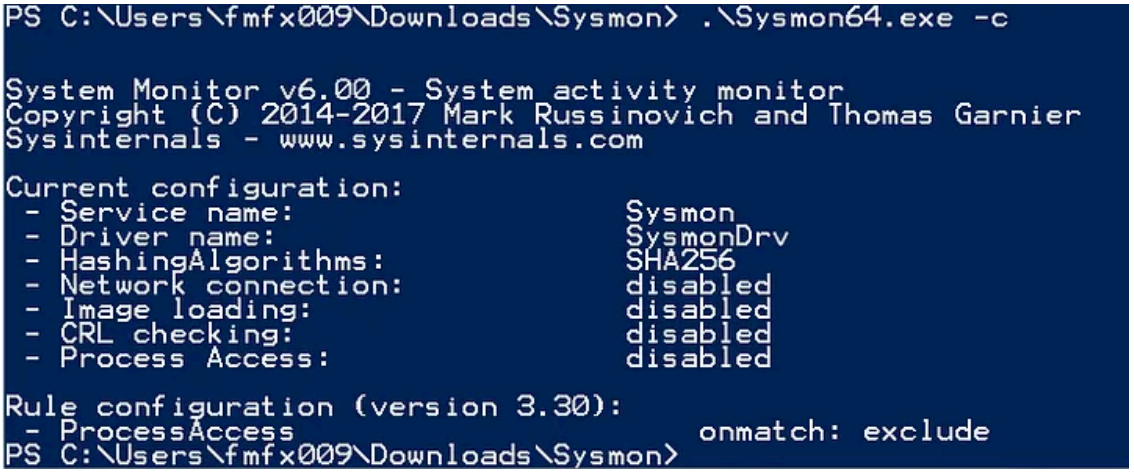

Dump Passwords From Memory Using Mimikatz

To test the Sysmon Process Access logging, dump passwords from memory using Mimikatz.

```
PS C:\Users\fmfx009\Downloads\mimikatz_trunk\x64> .\mimikatz.exe
privilege::debug
```

```
sekurlsa::logonpasswords
```

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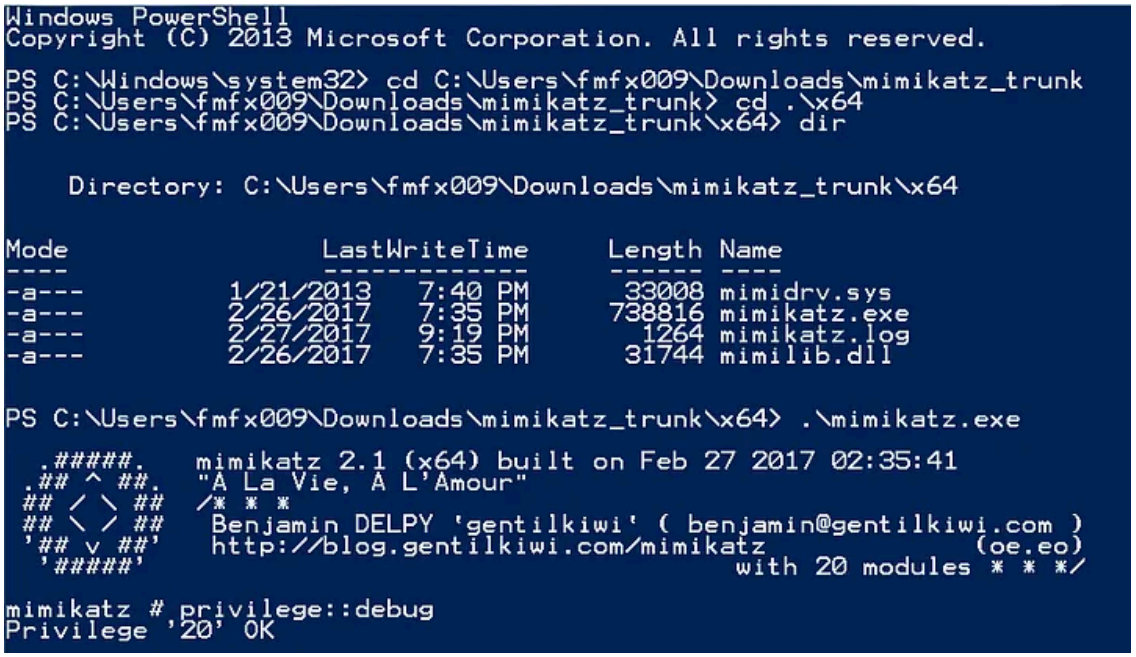

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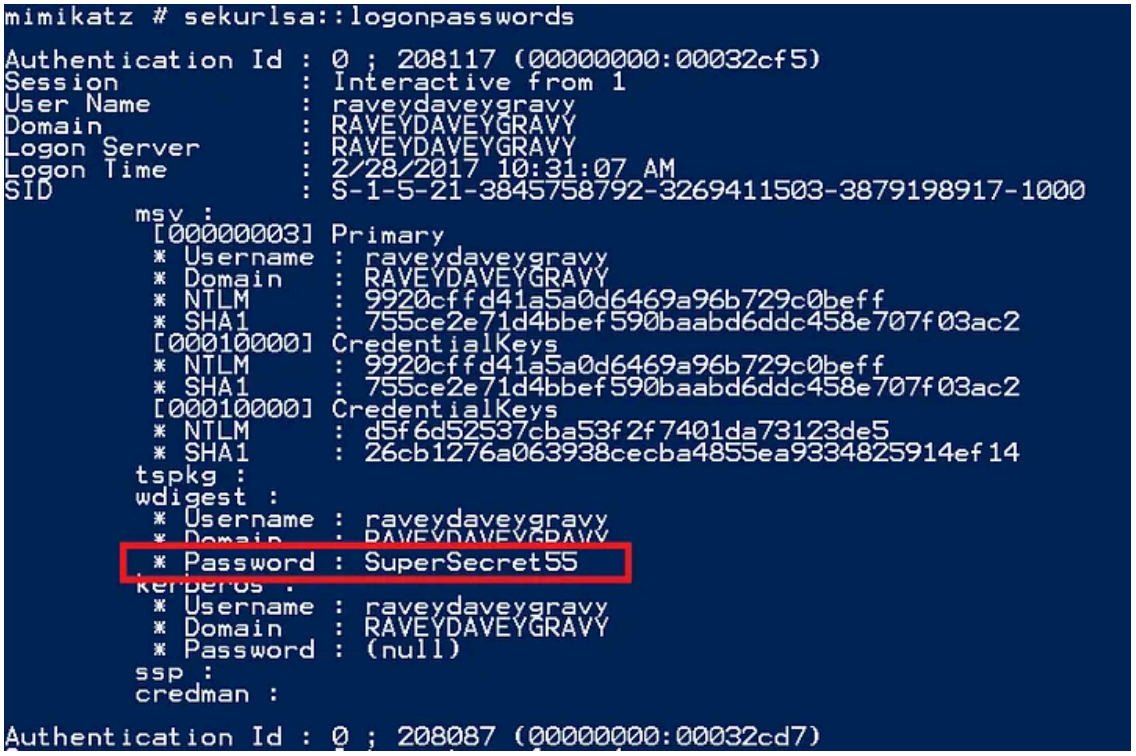

Review Sysmon Event Logs for Mimikatz Usage

Access the Sysmon logs via the Event Viewer under `Microsoft-Windows-Sysmon/Operational` or use the filtering features of Event Log Explorer.

Apply a filter to view all events with Event ID `10`, `Process accessed`.

You should see evidence of SourceImage: `lsass.exe` accessing TargetImage: `mimikatz.exe`. You should also see evidence of SourceImage: `mimikatz.exe` accessing TargetImage: `lsass.exe`.

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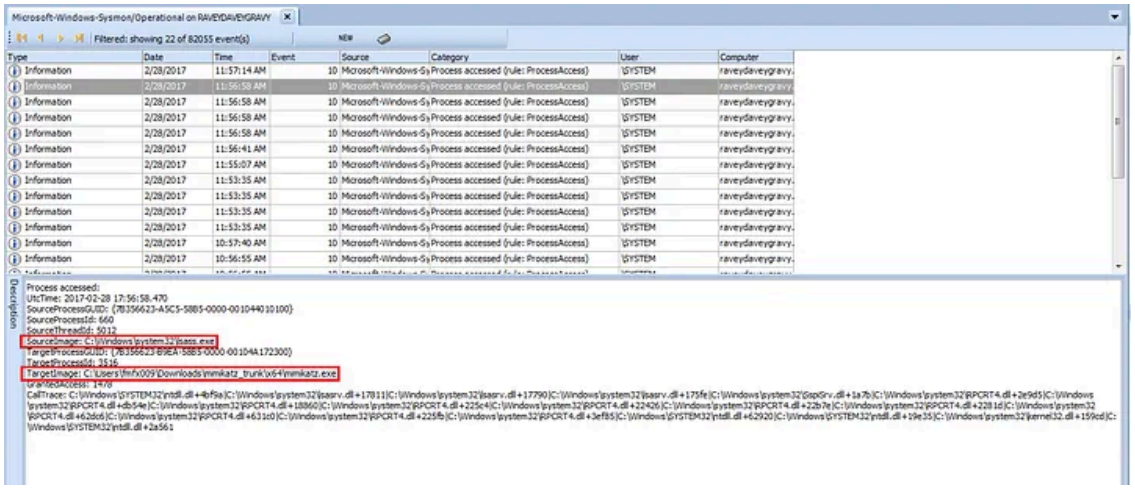

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