Cryogenically Frozen Malware

vx-underground collection // by smelly__vx and Ethereal

Frozen Malcode:

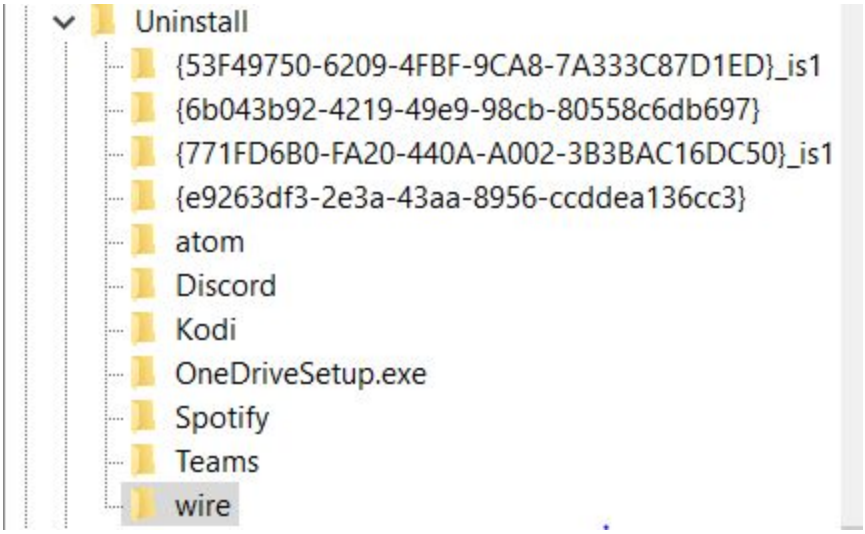
For quite sometime now we've been sitting on a lesser known malware technique I've (smelly) titled *Cryogenically Frozen Malcode*. This term derives from the fact that the malicious binary is in a long-term frozen state and has a low-likelihood of execution (or *unthawing* and/or *resurrection*). This technique is not ideal - however under very specific environments or scenarios it may be viable. This technique is made possible by abusing registry components tied to specific properties within the Windows Installer API.

The Windows Installer API's properties, which derive from the Windows Installer binary, allow a product to configure it's uninstall properties which will be visible from the Control Panel. When a user selects uninstall (or, depending on the binary configurations, *modify settings*) it will refer to the property present within the registry titled *Uninstall*. (Un)fortunately, the documentation present on MSDN is slightly misleading - the documentation states that the binary uninstall path is located in HKEY_LOCAL_MACHINE i.e.

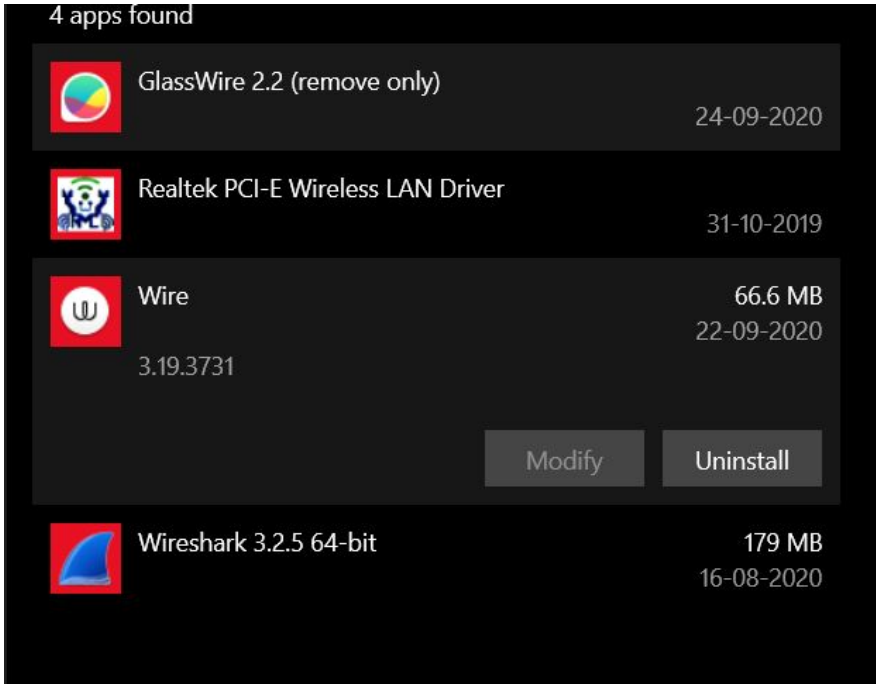
```
HKEY_LOCAL_MACHINE\Software\Microsoft\Windows\CurrentVersion\Uninstall
```

However, this is not entirely true. In some scenarios applications will store uninstaller properties in the user-specific registry key HKEY_CURRENT_USER which does not require administrative and/or elevated privileges to write to i.e.

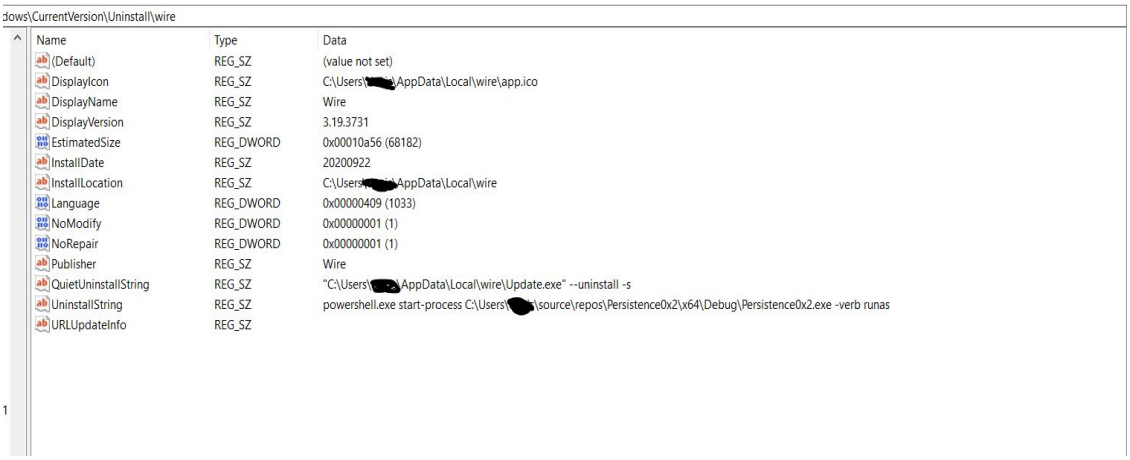
```
HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Uninstall
```



The image above is a snippet of the file listing present within the Uninstall Key. Each entry contains attributes which the Control Panel reads when a user navigates through them.



In this particular paper our code demonstrates enumerating the Uninstall Key, locates a specified application, hijacks its UninstallString key and replaces it with a powershell command line which requests our malicious binary be run as admin. Ideally, a non-educated user would attempt to uninstall the application and allow UAC to execute the binary being presented. Why would a user not trust the Control Panel?



The image above shows the modified UninstallString path.

```
powershell.exe start-process {binary-path.exe} -verb runas
```