```
    ____    __________________________________________________________________________________________
   //¯¯\\__//¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯\\___
   \\__//¯¯¯ [FightingEntropy(π)][2022.10.1]                                                   ___//¯¯\\
    ¯¯¯\\__________________________________________________________________________________//¯¯\\__//
        ¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯    ¯¯¯¯
```

```
\_______________________________________________________________________________________________________/
  [FightingEntropy(π)][2022.10.1] /¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯\
/¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯
```

Greetings reader,
This is a preview of an upcoming version of | [FightingEntropy(π)][2022.10.1] |

```
--------------------------------------------------------------------------------
| 10/28/22 | 2022_1028-([FightingEntropy(π)][2022.10.1]) | https://youtu.be/S7k4lZdPE-I |
--------------------------------------------------------------------------------
```

This new version is essentially reinventing the installation and removal process, as well as how it obtains the files from the project site, validates the components, and by the time it's ready to roll, it'll begin to filter out the stuff that doesn't work in Linux, PowerShell Core, and Windows PowerShell.

There's a real possibility that it won't even be called 2022.10.1, and that I'll probably clear out all prior versions, but who knows. It won't be complete before November 1st, 2022... because I've been testing a component that is incredibly demanding with processing power and balances multiple threads.

As for balancing a broomhandle in a hurricane (AKA, Linux, PowerShell Core, and Windows PowerShell)...
That's basically dancing with death in and of itself, being able to prevent certain functions from loading on various other platforms, but still having all of the files intact.

Effectively, there'll be a different version of the module for each system it is deployed to, for each version that the module detects or is able to run.

So, what I mean is this.
If I'm running PowerShell Core, then the module will only load the components that PowerShell Core can run.
If I switch to PowerShell Desktop, then the module will load all of the components, minus the server stuff.

If I'm running on a Windows server operating system, well guess what dude...?
NOW I'm gonna have access to the heavy hitting components featured in the module.
These are all things that the (DISM/Deployment and Imaging Service Module), does.
DISM is the thing that Windows, like, runs off of.

I could go on, but ultimately, there's a lot to consider and it all bleeds right back to the manner of how the module installs itself. As well as how it instantiates itself.

The installation function is below, and it is just what I've managed to do over the last few days or so.
It is including a light version of the Write-Theme function, which I think will win some people over when they go to use it, and then they're like “WHOA, COLORS IN THE CONSOLE AND STUFF...?”

Yeah, buddy.

The classes below are all contained within the function, and they need to be described before the process is fully understood.

```
                                                                                ________________________________/
\______________________________________________________________________________/ [FightingEntropy(π)][2022.10.1]
  <FightingEntropy.Module.ThemeBlock> /¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯\
/¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯
```

This class is a part of (3) individual classes that are each related to the Write-Theme function within the module itself. Together, they represent a lightweight version of that particular function.

This particular class is a “BLOCK”, which represents a single [Object] in (an array/collection) of [Object[]].

Consider this like a Lego block, it has a COLOR, and it also has a HEIGHT, and WIDTH, and they tell the function Write-Host what to display for a particular line of characters.

```
    # // ____________________________________________________________________
    # // | This is a 1x[track] x 4[char] chunk of information for Write-Host |
    # // ¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯

    Class ThemeBlock
    {
        [UInt32]   $Index
        [Object]  $String
        [UInt32]    $Fore
        [UInt32]    $Back
        [UInt32]    $Last
        ThemeBlock([Int32]$Index,[String]$String,[Int32]$Fore,[Int32]$Back)
        {
            $This.Index  = $Index
            $This.String = $String
            $This.Fore   = $Fore
            $This.Back   = $Back
            $This.Last   = 1
        }
        Write([UInt32]$0,[UInt32]$1,[UInt32]$2,[UInt32]$3)
        {
            $Splat = @{

                Object          = $This.String
                ForegroundColor = @($0,$1,$2,$3)[$This.Fore]
                BackgroundColor = $This.Back
                NoNewLine       = $This.Last
            }

            Write-Host @Splat
        }
        [String] ToString()
        {
            Return "<FightingEntropy.Module.ThemeBlock>"
        }
    }
```

```
                                                                                         ____________________________________/
\_______________________________________________________________________________________/ <FightingEntropy.Module.ThemeBlock>
  <FightingEntropy.Module.ThemeTrack> /¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯\
/¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯
```

The above class, is (controlled by/contained within) this particular class. This class doesn't DO a whole lot, other than to represent (1x) track `[Object]` of (30x) block `[Object]`'s, allowing it to be numerically indexed.

```
    # // ______________________________________________
    # // | Represents a 1x[track] in a stack of tracks |
    # // ¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯

    Class ThemeTrack
    {
        [UInt32] $Index
        [Object] $Content
        ThemeTrack([UInt32]$Index,[Object]$Track)
        {
            $This.Index   = $Index
            $This.Content = $Track
        }
        [String] ToString()
        {
            Return "<FightingEntropy.Module.ThemeTrack>"
        }
    }
```

```
                                                                                         ____________________________________/
\_______________________________________________________________________________________/ <FightingEntropy.Module.ThemeTrack>
  <FightingEntropy.Module.ThemeStack> /¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯\
/¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯
```

This particular class effectively controls the above (2) classes, and puts the common denominator of the property `[Object] $Face` into a single scope, so that the above classes do not have to recast the same information for each time that the main method is run.

```
# // ____________________________________________
# // | Generates an actionable write-host object |
# // ¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯

Class ThemeStack
{
    Hidden [Object]  $Face
    Hidden [Object] $Track
    ThemeStack([UInt32]$Slot,[String]$Message)
    {
        $This.Main($Message)
        $This.Write($This.Palette($Slot))
    }
    ThemeStack([String]$Message)
    {
        $This.Main($Message)
        $This.Write($This.Palette(0))
    }
    Main([String]$Message)
    {
        $This.Face = $This.Mask()
        $This.Reset()
        $This.Insert($Message)
    }
    [UInt32[]] Palette([UInt32]$Slot)
    {
        If ($Slot -gt 35)
        {
            Throw "Invalid entry"
        }

        Return @( Switch ($Slot)
        {
            00 {10,12,15,00} 01 {12,04,15,00} 02 {10,02,15,00} # Default, R*/Error,   G*/Success
            03 {01,09,15,00} 04 {03,11,15,00} 05 {13,05,15,00} # B*/Info, C*/Verbose, M*/Feminine
            06 {14,06,15,00} 07 {00,08,15,00} 08 {07,15,15,00} # Y*/Warn, K*/Evil,    W*/Host
            09 {04,12,15,00} 10 {12,12,15,00} 11 {04,04,15,00} # R!,      R+,         R-
            12 {02,10,15,00} 13 {10,10,15,00} 14 {02,02,15,00} # G!,      G+,         G-
            15 {09,01,15,00} 16 {09,09,15,00} 17 {01,01,15,00} # B!,      B+,         B-
            18 {11,03,15,00} 19 {11,11,15,00} 20 {03,03,15,00} # C!,      C+,         C-
            21 {05,13,15,00} 22 {13,13,15,00} 23 {05,05,15,00} # M!,      M+,         M-
            24 {06,14,15,00} 25 {14,14,15,00} 26 {06,06,15,00} # Y!,      Y+,         Y-
            27 {08,00,15,00} 28 {08,08,15,00} 29 {00,00,15,00} # K!,      K+,         K-
            30 {15,07,15,00} 31 {15,15,15,00} 32 {07,07,15,00} # W!,      W+,         W-
            33 {11,06,15,00} 34 {06,11,15,00} 35 {11,12,15,00} # Steel*,  Steel!,     C+R+
        })
    }
    [Object] Mask()
    {
        Return ("20202020 5F5F5F5F AFAFAFAF 2020202F 5C202020 2020205C 2F202020 5C5F5F2F "+
        "2FAFAF5C 2FAFAFAF AFAFAF5C 5C5F5F5F 5F5F5F2F 205F5F5F" -Split " ") | % { $This.Convert($_) }
    }
    [String] Convert([String]$Line)
    {
        Return [Char[]]@(0,2,4,6 | % { [Convert]::FromHexString($Line.Substring($_,2)) }) -join ''
    }
    Add([String]$Mask,[String]$Fore)
    {
        # // ____________________________
        # // | Expands the mask strings |
        # // ¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯

        $Object        = Invoke-Expression $Mask | % { $This.Face[$_] }
        $FG            = Invoke-Expression $Fore
        $BG            = @(0)*30

        # // ____________________________
        # // | Generates a track object |
        # // ¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯

        $Hash          = @{ }
```

```
            ForEach ($X in 0..($Object.Count-1))
            {
                $Item      = [ThemeBlock]::New($X,$Object[$X],$FG[$X],$BG[$X])
                If ($X -eq $Object.Count-1)
                {
                    $Item.Last = 0
                }
                $Hash.Add($Hash.Count,$Item)
            }
            $This.Track  += [ThemeTrack]::New($This.Track.Count,$Hash[0..($Hash.Count-1)])
        }
        [Void] Reset()
        {
            $This.Track = @( )

            # // ____________________________
            # // | Generates default tracks |
            # // ----------------------------

            $This.Add("0,1,0+@(1)*25+0,0","@(0)*30")
            $This.Add("3,8,7,9+@(2)*23+10,11,0","0,1,0+@(1)*25+0,0")
            $This.Add("5,7,9,13+@(0)*23+12,8,4","0,1,1+@(2)*24+1,1,0")
            $This.Add("0,10,11+@(1)*23+12+8,7,6","0,0+@(1)*25+0,1,0")
            $This.Add("0,0+@(2)*25+0,2,0","@(0)*30")
        }
        Insert([String]$String)
        {
            $This.Reset()
            $String = " $String"
            Switch ($String.Length)
            {
                {$_ -lt 84}
                {
                    $String += (@(" ") * (84 - ($String.Length+1)) -join '' )
                }
                {$_ -ge 84}
                {
                    $String  = $String.Substring(0,84) + "..."
                }
            }
            $Array = [Char[]]$String
            $Hash  = @{ }
            $Block = ""
            ForEach ($X in 0..($Array.Count-1))
            {
                If ($X % 4 -eq 0 -and $Block -ne "")
                {
                    $Hash.Add($Hash.Count,$Block)
                    $Block = ""
                }
                $Block += $Array[$X]
            }

            ForEach ($X in 0..($Hash.Count-1))
            {
                $This.Track[2].Content[$X+3].String = $Hash[$X]
            }
        }
        [Void] Write([UInt32[]]$Palette)
        {
            $This.Track | % Content | % Write $Palette
        }
        [String] ToString()
        {
            Return "<FightingEntropy.Module.ThemeStack>"
        }
    }
```

```
____________________________________________________________________________________________________________________
| ThemeStack([UInt32]$Slot,[String]$Message) | Primary entry into the class, accepts (2) parameters                |
| ThemeStack([String]$Message)               | Secondary entry into the class, accepts (1) parameter               |
| Main([String]$Message)                     | Main method will combine the following methods into one             |
| [UInt32[]] Palette([UInt32]$Slot)          | Returns a mask of colors which allow the theme to work           |
| [Object] Mask()                            | Returns the faces for the blocks                                 |
| [String] Convert([String]$Line)            | Converts a string of joined hexadecimal characters to integers   |
| Add([String]$Mask,[String]$Fore)           | Adds a single line of mask information w/ foregroundcolor        |
| [Void] Reset()                             | Clears out any existing information, AND resets the class        |
| Insert([String]$String)                    | Processes the input string into the mask object                  |
| [Void] Write([UInt32[]]$Palette)           | Tells the Write-Host object that it better get to work, or else~! |
| [String] ToString()                        | Returns the name of the type/class                               |
--------------------------------------------------------------------------------------------------------------------
```

Currently, this class is simply attached to the [Main]::New() class at the end of (this document/the function), and THAT class controls THIS class, as well as it's various properties and methods.

```
                                                                                  ______________________________________/
\________________________________________________________________________________/ <FightingEntropy.Module.ThemeStack>
  <FightingEntropy.Module.OSProperty> /--------------------------------------------------------------------------------\
/-------------------------------------
```

This is essentially an extension of the type [PSNoteProperty], but it allows the source & index to be injected.
With a NORMAL [PSNoteProperty] object, the numerical index property is ASSUMED, from outside of the scope.

However, by specifically adding it as a property, the object can be accessed by that property from either the pipeline, or by using an array selector. Not to mention, adding the SOURCE of the property is also rather useful.

```
# // ____________________________________________________
# // | Property object which includes source and index  |
# // ¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯

Class OSProperty
{
    [String] $Source
    Hidden [UInt32] $Index
    [String] $Name
    [Object] $Value
    OSProperty([String]$Source,[UInt32]$Index,[String]$Name,[Object]$Value)
    {
        $This.Source = $Source
        $This.Index  = $Index
        $This.Name   = $Name
        $This.Value  = $Value
    }
    [String] ToString()
    {
        Return "<FightingEntropy.Module.OSProperty>"
    }
}
```

```
                                                                                  ______________________________________/
\________________________________________________________________________________/ <FightingEntropy.Module.OSProperty>
  <FightingEntropy.Module.OSPropertySet> /-----------------------------------------------------------------------------\
/----------------------------------------
```

This is a collection of properties for a particular source, and it allows THEM to be indexed and accessed as a collection from a larger parent scope, and allows each source object to remain its' own independent object.

```
# // __________________________________________________________
# // | Container object for indexed OS (property/value) pairs |
# // ¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯

Class OSPropertySet
{
    Hidden [UInt32] $Index
    [String] $Source
    [Object] $Property
    OSPropertySet([UInt32]$Index,[String]$Source)
    {
        $This.Index     = $Index
        $This.Source    = $Source
        $This.Property  = @( )
    }
```

```
        Add([String]$Name,[Object]$Value)
        {
            $This.Property += [OSProperty]::New($This.Source,$This.Property.Count,$Name,$Value)
        }
        [String] ToString()
        {
            $D = ([String]$This.Property.Count).Length
            Return "({0:d$D}) <FightingEntropy.Module.OSPropertySet[{1}]>" -f $This.Property.Count, $This.Source
        }
    }
```

```
                                                                                          ________________________________________/
\_____________________________________________________________________________/ <FightingEntropy.Module.OSPropertySet>
  <FightingEntropy.Module.OS> /__________________________________________________________________________________________\
/¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯
```

Truncates some information from the automatic variables in relation to the operating system and PSVersion types.

```
    # // ________________________________________________________
    # // | Collects various details about the operating system |
    # // | specifically for cross-platform compatibility       |
    # // ¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯

    Class OS
    {
        [Object]   $Caption
        [Object]  $Platform
        [Object] $PSVersion
        [Object]      $Type
        [Object]    $Output
        OS()
        {
            $This.Output = @( )

            # // _______________
            # // | Environment |
            # // ¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯

            $This.AddPropertySet("Environment")

            Get-ChildItem Env:              | % { $This.Add(0,$_.Key,$_.Value) }

            # // ____________
            # // | Variable |
            # // ¯¯¯¯¯¯¯¯¯¯¯¯

            $This.AddPropertySet("Variable")

            Get-ChildItem Variable:         | % { $This.Add(1,$_.Name,$_.Value) }

            # // ________
            # // | Host |
            # // ¯¯¯¯¯¯¯¯

            $This.AddPropertySet("Host")

            (Get-Host).PSObject.Properties  | % { $This.Add(2,$_.Name,$_.Value) }

            # // ______________
            # // | PowerShell |
            # // ¯¯¯¯¯¯¯¯¯¯¯¯¯¯

            $This.AddPropertySet("PowerShell")

            (Get-Variable PSVersionTable | % Value).GetEnumerator() | % { $This.Add(3,$_.Name,$_.Value) }

            # // ____________________________________
            # // | Assign hashtable to output array |
            # // ¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯
            $This.Caption   = $This.Tx("PowerShell","OS")
            $This.Platform  = $This.Tx("PowerShell","Platform")
            $This.PSVersion = $This.Tx("PowerShell","PSVersion")
            $This.Type      = $This.GetOSType()
        }
        [Object] Tx([String]$Source,[String]$Name)
        {
            Return $This.Output | ? Source -eq $Source | % Property | ? Name -eq $Name | % Value
        }
        Add([UInt32]$Index,[String]$Name,[Object]$Value)
        {
            $This.Output[$Index].Add($Name,$Value)
        }
        AddPropertySet([String]$Name)
        {
            $This.Output += [OSPropertySet]::New($This.Output.Count,$Name)
        }
        [String] GetWinCaption()
        {
            Return "[wmiclass]'Win32_OperatingSystem' | % GetInstances | % Caption"
        }
        [String] GetWinType()
        {
            Return @(Switch -Regex (Invoke-Expression $This.GetWinCaption())
            {
                "Windows (10|11)" { "Win32_Client" } "Windows Server" { "Win32_Server" }
            })
        }
        [String] GetOSType()
        {
            Return @( If ($This.Version.Major -gt 5)
            {
                If (Get-Item Variable:\IsLinux | % Value)
                {
                    (hostnamectl | ? { $_ -match "Operating System" }).Split(":")[1].TrimStart(" ")
                }

                Else
                {
                    $This.GetWinType()
                }
            }

            Else
            {
                $This.GetWinType()
            })
        }
        [String] ToString()
        {
            Return "<FightingEntropy.Module.OS>"
        }
    }
```

```
                                                                                           _____________________________/
\_________________________________________________________________________________________/ <FightingEntropy.Module.OS>
  <FightingEntropy.Module.File> /---------------------------------------------------------------------------------------\
/-------------------------------
```

    Encapsulates the entire process of collection, validation, writing to disk, and keeping each file organized.

```
    # // ______________________________________________________________
    # // | Manifest file -> filesystem object (collection/validation) |
    # // --------------------------------------------------------------

    Class File
    {
        Hidden [UInt32]    $Index
        [String]            $Type
        [String]            $Name
        [String]            $Hash
        [UInt32]          $Exists
        Hidden [String] $Fullname
        Hidden [String]   $Source
        Hidden [UInt32]    $Match
        Hidden [Object]  $Content
        File([UInt32]$Index,[String]$Type,[String]$Parent,[String]$Name,[String]$Hash)
        {
            $This.Index    = $Index
            $This.Type     = $Type
            $This.Name     = $Name
            $This.Fullname = "$Parent\$Name"
            $This.Hash     = $Hash
            $This.TestPath()
        }
        [String] FolderName()
        {
            Return @{

                Class    = "Classes"
                Control  = "Control"
                Function = "Functions"
                Graphic  = "Graphics"

            }[$This.Type]
        }
        TestPath()
        {
            If (!$This.Fullname)
            {
                Throw "Exception [!] Resource path not set"
            }

            $This.Exists   = [System.IO.File]::Exists($This.Fullname)
        }
        [Void] Create()
        {
            $This.TestPath()

            If (!$This.Exists)
            {
                [System.IO.File]::Create($This.Fullname).Dispose()
                $This.Exists = 1
            }
        }
        [Void] Delete()
        {
            $This.TestPath()

            If ($This.Exists)
            {
                [System.IO.File]::Delete($This.Fullname)
                $This.Exists = 0
            }
        }
        SetSource([String]$Source)
        {
            $This.Source   = "{0}/blob/main/{1}/{2}?raw=true" -f $Source, $This.FolderName(), $This.Name
        }
        Download()
        {
            Try
            {
                $This.Content = Invoke-WebRequest $This.Source -UseBasicParsing | % Content
            }
            Catch
            {
                Throw "Exception [!] An unspecified error occurred"
            }
        }
        Write()
        {
            If (!$This.Content)
            {
                Throw "Exception [!] Content not assigned, cannot (write/set) content."
            }

            If (!$This.Exists)
            {
                Throw "Exception [!] File does not exist."
            }

            Try
            {
                If ($This.Name -match "\.+(jpg|jpeg|png|bmp|ico)")
                {
                    [System.IO.File]::WriteAllBytes($This.Fullname,[Byte[]]$This.Content)
                }
                Else
                {
                    [System.IO.File]::WriteAllText($This.Fullname,
                                                   $This.Content,
                                                   [System.Text.UTF8Encoding]$False)
                }
            }
            Catch
            {
                Throw "Exception [!] An unspecified error has occurred"
            }
        }
        GetContent()
        {
            If (!$This.Exists)
            {
                Throw "Exception [!] File does not exist, it needs to be created first."
            }

            Try
            {
                If ($This.Name -match "\.+(jpg|jpeg|png|bmp|ico)")
                {
                    $This.Content = [System.IO.File]::ReadAllBytes($This.Fullname)
                }
                Else
                {
                    $This.Content = [System.IO.File]::ReadAllLines($This.Fullname,
                                                                  [System.Text.UTF8Encoding]$False)
                }
            }
            Catch
            {
                Throw "Exception [!] An unspecified error has occurred"
            }
        }
        [String] ToString()
        {
            Return "<FightingEntropy.Module.File>"
        }
    }
```

```
                                                                                     ________________________________/
\___________________________________________________________________________________/ <FightingEntropy.Module.File>
  <FightingEntropy.Module.Folder> /¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯\
/¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯
```

Works with the file system as well as the FE module manifest, to orchestrate the process of 1) installing, 2) removing, or 3) validating the module's resource files.

```
    # // ________________________________________
    # // | Manifest folder -> filesystem object |
    # // ¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯
    Class Folder
    {
        Hidden [UInt32]    $Index
        [String]            $Type
        [String]            $Name
        [String]        $Fullname
        [UInt32]          $Exists
        Hidden [Object]    $Item
        Folder([UInt32]$Index,[String]$Type,[String]$Parent,[String]$Name)
        {
            $This.Index     = $Index
            $This.Type      = $Type
            $This.Name      = $Name
            $This.Fullname  = "$Parent\$Name"
            $This.Item      = @( )
            $This.TestPath()
        }
        Add([String]$Name,[Object]$Hash)
        {
            $File           = [File]::New($This.Item.Count,$This.Type,$This.Fullname,$Name,$Hash)
            If ($File.Exists)
            {
                $Hash       = Get-FileHash $File.Fullname | % Hash
                If ($Hash -eq $File.Hash)
                {
                    $File.Match = 1
                }
                If ($Hash -ne $File.Hash)
                {
                    $File.Match = 0
                }
            }

            $This.Item     += $File
        }
        TestPath()
        {
            $This.Exists = [System.IO.Directory]::Exists($This.Fullname)
        }
        [Void] Create()
        {
            $This.TestPath()

            If (!$This.Exists)
            {
                [System.IO.Directory]::CreateDirectory($This.Fullname)
                $This.Exists = 1
            }
        }
        [Void] Delete()
        {
            $This.TestPath()

            If ($This.Exists)
            {
                [System.IO.Directory]::Delete($This.Fullname)
                $This.Exists = 0
            }
        }
        [String] ToString()
        {
            $D = ([String]$This.Item.Count).Length
            Return "({0:d$D}) <FightingEntropy.Module.Folder[{1}]>" -f $This.Item.Count, $This.Name
        }
    }
```

```
  <FightingEntropy.Module.Manifest> /¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯\
/¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯
```

This particular class is formatted slightly differently than in the actual function, mainly the files and their corresponding hash values. The main difference is simply how the hash value is on the next line, and that's because the formatting that I use is too limited to show the names of each file and hash value in the same line.

This class orchestrates all of the file objects, and it can convert a file object into an actual file, and it also contains all of the instructions needed to download and validate those files. The process isn't controlled from this class specifically, however, this particular class is one of the most important PROPERTIES of the `[Main]::New()` class at the end of (this document/the function).

```
# // _____________________________________________________________________
# // | File manifest container, laid out for hash (insertion+validation) |
# // ¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯

Class Manifest
{
    [String]       $Source
    [String]     $Resource
    Hidden [UInt32] $Depth
    Hidden [UInt32] $Total
    [Object]       $Output
    Manifest([String]$Source,[String]$Resource)
    {
        $This.Source   = $Source
        $This.Resource = $Resource
        $This.Output   = @( )

        # // ___________
        # // | Classes |
        # // ¯¯¯¯¯¯¯¯¯¯¯

        $This.AddFolder("Class","Classes")

        ("_Cache.ps1"                                ,
         "DA2DAF257EB99FFF7E414B83D3659B55646D54DE338D81DB0675D98E76EAE630") ,
        ("_Drive.ps1"                                ,
         "B6CE9795F97896C64C991D7C1314E36939C92C514312C0630C8C5B9A1A972388") ,
        ("_Drives.ps1"                               ,
         "0B1E99226B2345B596B0EC6CF03E85235B43F07862A43C6ACDB74144E176C744") ,
        ("_File.ps1"                                 ,
         "26E3C8D2C23A96F75E953603B7C4F028609FBE78444CF8AEAE53FE89B41B5904") ,
        ("_FirewallRule.ps1"                         ,
         "4E0B2B849674C2A36D16E32D9914E95B1F18C5645F393CFA321322CB2122EC3") ,
        ("_Icons.ps1"                                ,
         "D469DB44301A69F832417744A58EE60D03AC4C83F8C8AFA3D4D5E765C02BD9F2") ,
        ("_Shortcut.ps1"                             ,
         "FCA9DC157A2BDF9D66AA9A2803D9A419F28D375A7C4ABFFA23A925F544778B6C") ,
        ("_ViperBomb.ps1"                            ,
         "82D3FDBA40360D8E0123CDAEFF3A0A8F0AE0105CC4D6791EBF8B40BD0BF64162") | % {

            $This.Add(0,$_[0],$_[1])
        }

        # // ___________
        # // | Control |
        # // ¯¯¯¯¯¯¯¯¯¯¯

        $This.AddFolder("Control","Control")

        ("Computer.png"                              ,
         "87EAB4F74B38494A960BEBF69E472AB0764C3C7E782A3F74111F993EA31D1075") ,
        ("DefaultApps.xml"                           ,
         "939CE697246AAC96C6F6A4A285C8EE285D7C5090523DB77831FF76D5D4A31539") ,
        ("failure.png"                               ,
         "59D479A0277CFFDD57AD8B9733912EE1F3095404D65AB630F4638FA1F40D4E99") ,
        ("FEClientMod.xml"                           ,
         "B3EB870C6B4206D11C921E70C6D058777A5F69FD1D9DEA8B6071759CAFCD2593") ,
        ("FEServerMod.xml"                           ,
         "55A881BFE436EF18C104BFA51ECF6D12583076D576BA3276F53A682E056ACA5C") ,
        ("header-image.png"                 ,
         "38F1E2D061218D31555F35C729197A32C9190999EF548BF98A2E2C2217BBCB88") ,
        ("MDT_LanguageUI.xml"               ,
         "100B5CA10BCF99E2A8680C394266042DEA5ECA300FBDA33289F6E4A17E44CBCF") ,
        ("MDTClientMod.xml"                 ,
         "C22C53DAAB87AAC06DC3AC64F66C8F6DF4B7EAE259EC5D80D60E51AF82055231") ,
        ("MDTServerMod.xml"                 ,
         "3724FE189D8D2CFBA17BC2A576469735B1DAAA18A83D1115169EFF0AF5D42A2F") ,
        ("PSDClientMod.xml"                 ,
         "4175C9569C8DFC1F14BADF70395D883BDD983948C2A6633CBBB6611430A872C7") ,
        ("PSDServerMod.xml"                 ,
         "4175C9569C8DFC1F14BADF70395D883BDD983948C2A6633CBBB6611430A872C7") ,
        ("success.png"                      ,
         "46757AB0E2D3FFFFDBA93558A34AC8E36F972B6F33D00C4ADFB912AE1F6D6CE2") ,
        ("vendorlist.txt"                   ,
         "9BD91057A1870DB087765914EAA5057D673CDC33145D804BBF4B024A11D66934") ,
        ("zipcode.txt"                      ,
         "45D5F4B9B50782CEC4767A7660583C68A6643C02FC7CC4F0AE5A79CCABE83021") | % {

            $This.Add(1,$_[0],$_[1])
        }

        # // _____________
        # // | Functions |
        # // ¯¯¯¯¯¯¯¯¯¯¯¯¯

        $This.AddFolder("Function","Functions")

        ("Copy-FileStream.ps1"              ,
         "F80662EF865682E3DF17EA8F30E31E3D0F1650C8DD5A129D4F8B9539F92A61B3") ,
        ("Get-AssemblyList.ps1"             ,
         "1610574E514AAF500FF8CEDCCF2B46EDF28287D9E3EFB612C3C0320320A4E7A3") ,
        ("Get-ControlExtension.ps1"         ,
         "8CC5D1320C51498AF2BE365F38949926331339E7CB6B3101C4A46FAD05CF2092") ,
        ("Get-DiskInfo.ps1"                 ,
         "1D68ED1AD277CCF0B860332C1501570B39C49B67D7F9AF7F309ADC9E99B409D0") ,
        ("Get-EnvironmentKey.ps1"           ,
         "C7C6D0D422A93F803F6F7539C42E057DA213661F9F2212679C6DCF10F5F3AA51") ,
        ("Get-EventLogArchive.ps1"          ,
         "E411B5B741F98B1F483B1F4E62DF0B64D536EB61ADE427D8793BEC1E99B51021") ,
        ("Get-EventLogConfigExtension.ps1"  ,
         "CE7FC970662A07DAED28F3E29FD2E449ED691315CB312039D0FDB61E0B587C45") ,
        ("Get-EventLogController.ps1"       ,
         "B3F1DB7A018A22E378637E170CA016F250572A2DA5113CF1AE3CC393A732091A") ,
        ("Get-EventLogProject.ps1"          ,
         "37BD731836ABC26EA2D4D478860A74E3D835B00BD130C4D25848B172B5D22BC1") ,
        ("Get-EventLogRecordExtension.ps1"  ,
         "5722717C4A51D0069DD78FD31E72F239211BC26C10D9CFF5202659B50A026A56") ,
        ("Get-EventLogXaml.ps1"             ,
         "3D5BCF8F6FAAB73F2CF113C4778A7556C908C055D472E313224FD05BC470D48C") ,
        ("Get-FEADLogin.ps1"                ,
         "4297453E04EB27552ABD8C3C14104273C60F221A8248CEA1C65A4D30B99C7203") ,
        ("Get-FEDCPromo.ps1"                ,
         "06CD65C5C5ABDB7A5A625DE510C7CDA4FD9575E7976D7C65FA713714DDC01DFB") ,
        ("Get-FEHost.ps1"                   ,
         "02904EA751DB13D32FC18577D8780DE8B7E4ADB43EC94FC11621BA6CE5DC2488") ,
        ("Get-FEImageManifest.ps1"          ,
         "C45D927563C29E8E5AF173ACD635AED75A963582389D39B3A9D2CDF9E9849ECC") ,
        ("Get-FEInfo.ps1"                   ,
         "2C3E7209FFEE695E7187972B2AB0EF2B50CB5C8F89680ED1E9A14A388B376A59") ,
        ("Get-FEManifest.ps1"               ,
         "93CD40C06942BCCCBD67ECD950AA3B8F8D9A4162EAE1681C352CA20D7B6CC3F1") ,
        ("Get-FEModule.ps1"                 ,
         "12FD9079144EFABD7E0ECB923401CB3294C9642004B9259160712E963E99A89B") ,
        ("Get-FENetwork.ps1"                ,
         "88C28DF03BC1EC0E79E250D3496E6E9C6E26DFCBCEBC4EBA647AA1540BA8C438") ,
        ("Get-FEOS.ps1"                     ,
         "8C32694CE87CC1CCCB46E106C210F36B84EFCBF4D85C5240BB66D0C0840303BF") ,
        ("Get-FEProcess.ps1"                ,
         "0CB2B46E14790BA89FC2F60A12B67C9F1E435A8A20DBF011A130D26A291E094D") ,
        ("Get-FERole.ps1"                   ,
         "1E52DFB5820ACDC711D232DC18E5DCFCF390EF71721E2BE4DDADB885B675A529") ,
        ("Get-FEService.ps1"                ,
         "3D7F947ADCDCDF0A139AFFA9E92D125A581275BDC2B74247F437BA5A4985C2D6") ,
        ("Get-FESitemap.ps1"                ,
         "45A571D62EE528F05E0D4EA43995FB0B7C4A1DD7D1839A8D7EEB8754E8AB3009") ,
        ("Get-MadBomb.ps1"                  ,
         "87550BBEE679E62DF45F44F5BC871030B833FA9DCC8C9956AF422707444EAB68") ,
        ("Get-MDTModule.ps1"                ,
         "409B59C64ABEBAC3DE884954E40C433B6CDA3145A2EE2D82B503D0ABA1EDBE3D") ,
        ("Get-PowerShell.ps1"               ,
         "3E2C7F2FBCED55C73F393070F425AA6C66861EDA2D0CDE794F85BA962A3A0348") ,
        ("Get-PropertyItem.ps1"             ,
         "F9CFE6862B912B4D181A65FAF6BFBC1892ABBEED016FF14FAB3A8AD55B6C9151") ,
        ("Get-PropertyObject.ps1"           ,
         "A279B9F61B2633DB09D6D574D07B94A2C2D4429BC5DD539412E142F11AB49525") ,
        ("Get-PSDLog.ps1"                   ,
         "75F2F974CAE0153EB3987389A8EECD88255F58833273F84CC847C14BF80D3269") ,
        ("Get-PSDLogGUI.ps1"                ,
         "8716E3EC075E03E86BB28C495A359449445BC879F02F47AE5AEBCACCCE5BA679") ,
        ("Get-PSDModule.ps1"                ,
         "FCD86A877C9F8D5559E6849230AE41E169B31FEB197E0CF722C0CEA95B70CAAB") ,
        ("Get-SystemDetails.ps1"            ,
         "7B4713132FC595DC85A65286A370822A9F8A68897AD72432FCEC5385BF702EF1") ,
        ("Get-ThreadController.ps1"         ,
         "6BC2C4092188A2B9A8787513AD289CEB66AC11064C64230B6A1BE9A2AB15A42E") ,
        ("Get-ViperBomb.ps1"                ,
         "DF93D10B9C6ACEEEF21EC3AA6B0D32D1130900A363C3D654A529DF46B017541C") ,
        ("Get-WhoisUtility.ps1"             ,
         "9181508E7AE447FE317A50614FB83F1A4BD0B35490A0C5149F50A71D4C4AA451") ,
        ("Install-BossMode.ps1"             ,
         "2739086EB9BCDB520D0B20C17081EF5FB516C2E1387864CC38C9452EA16F0CC3") ,
        ("Install-IISServer.ps1"            ,
         "2D7DEEDB3F844183215609F72D63C24BA5B7C1D0D901120708172164EAA4A4E0") ,
        ("Install-PSD.ps1"                  ,
         "989B34030F75F0A6EFACC574361C170B2D51C6F5FA031032ECCE29119EC3B5A4") ,
        ("Invoke-cimdb.ps1"                 ,
         "4852D60255F5F2715703A38CF82C98B159B588E1B7A1BEA9D0E9AE2EC7530190") ,
        ("Invoke-KeyEntry.ps1"              ,
         "B1300999BF1A6ABEEDCFDEC1B0C150228D7FE03623D22DBCEBBC18C3BAF6C134") ,
        ("New-EnvironmentKey.ps1"           ,
         "A06CFAEAA6DCE65C6E3C6168A3AA2AD9230A81D16706BA82E8D89B0CD376BBE9") ,
        ("New-FEInfrastructure.ps1"         ,
         "966B36D105A6E02299F47B425A32612F17FB2AD16CEC68726D9D6006371206B0") ,
        ("Search-WirelessNetwork.ps1"       ,
         "AF3D312ECA04C87103D5F921F0D35B5B3C3B34EE83E571AA1594DA7C17ECFF5D") ,
        ("Set-ScreenResolution.ps1"         ,
         "FFF86F4CD863BBC59168BDD821362B274C3723A888896F225F6EF04DF5D7C32E") ,
        ("Show-ToastNotification.ps1"       ,
         "0002209685C3D83A4D08E4265B9285DEDD71C381B6EB8A8F7D86F4E949927969") ,
        ("Update-PowerShell.ps1"            ,
         "446878FCADA300B44691053ABF02FF96772B5FCE1A5434FB61A81FE3C1B416E4") ,
        ("Use-Wlanapi.ps1"                  ,
         "1113CEC8BE5E352B09698928995ED840B5EE7A3F90DE1A5537DF339E7D10E5FF") ,
        ("Write-Theme.ps1"                  ,
         "3B385DF0CC0E44AB1C6991A115B0466463AB3FDFA81371278B0D05028AA62703") | % {

            $This.Add(2,$_[0],$_[1])
        }

        # // ____________
        # // | Graphics |
        # // ------------

        $This.AddFolder("Graphic","Graphics")

        ("background.jpg"                   ,
         "94FD6CB32F8FF9DD360B4F98CEAA046B9AFCD717DA532AFEF2E230C981DAFEB5") ,
        ("banner.png"                       ,
         "057AF2EC2B9EC35399D3475AE42505CDBCE314B9945EF7C7BCB91374A8116F37") ,
        ("icon.ico"                         ,
         "594DAAFF448F5306B8B46B8DB1B420C1EE53FFD55EC65D17E2D361830659E58E") ,
        ("OEMbg.jpg"                        ,
         "D4331207D471F799A520D5C7697E84421B0FA0F9B574737EF06FC95C92786A32") ,
```

```powershell
        ("OEMlogo.bmp"                      ,
         "98BF79CAE27E85C77222564A3113C52D1E75BD6328398871873072F6B363D1A8") ,
        ("PSDBackground.bmp"                ,
         "05ABBABDC9F67A95D5A4AF466149681C2F5E8ECD68F11433D32F4C0D04446F7E") ,
        ("sdplogo.png"                      ,
         "87C2B016401CA3F8F8FAD5F629AFB3553C4762E14CD60792823D388F87E2B16C") | % {

            $This.Add(3,$_[0],$_[1])
        }

        $This.Total = ($This.Output | % Item).Count
        $This.Depth = ([String]$This.Total).Length
    }
    Add([UInt32]$Index,[String]$Name,[String]$Hash)
    {
        $This.Output[$Index] | % {

            $_.Add($Name,$Hash)
            $_.Item[-1].SetSource($This.Source)
        }
    }
    AddFolder([String]$Type,[String]$Name)
    {
        $This.Output += [Folder]::New($This.Output.Count,$Type,$This.Resource,$Name)
    }
    [String] Status([UInt32]$Rank)
    {
        Return "({0:d$($This.Depth)}/{1})" -f ($Rank+1), $This.Total
    }
    [String] Percent([UInt32]$Rank)
    {
        Return "{0:n2}" -f (($Rank/$This.Total) * 100)
    }
    Refresh()
    {
        $This.Output | % { $_.TestPath(); $_.Item | % TestPath }
    }
    Install()
    {
        $This.Refresh()

        $This.Output | ? Exists -eq 0 | % Create

        $List = $This.Output | % Item
        ForEach ($X in 0..($List.Count-1))
        {
            $File = $List[$X]
            $File.TestPath()
            If (!$File.Exists)
            {
                $File.Create()
                $File.Download()
                $File.Write()
                $File.TestPath()
            }
            Write-Host ("Installed [~] {0} {1}% -> {2}" -f $This.Status($X),
                                                           $This.Percent($X),
                                                           $File.Name)
        }
    }
    Remove()
    {
        $This.Refresh()

        $List  = $This.Output | % Item
        ForEach ($X in 0..($List.Count-1))
        {
            $File = $List[$X]
            $File.TestPath()
            If ($File.Exists)
            {
                $File.Delete()
```

```
                    $File.TestPath()
                }
                Write-Host ("Removed [+] {0} {1:n2}% -> {2}" -f $This.Status($X),
                                                                $This.Percent($X),
                                                                $File.Name)
            }

            $This.Output | ? Exists -eq 1 | % Delete
        }
        [Object] List()
        {
            Return @(ForEach ($Folder in $This.Output)
            {
                $Folder
                $Folder | % Item
            })
        }
        [Object] Files([UInt32]$Index)
        {
            Return $This.Output[$Index] | % Item
        }
        [String] ToString()
        {
            Return "<FightingEntropy.Module.Manifest>"
        }
    }
```

```
 ____________________________________________________________________________________________________________
| Manifest([String]$Source,[String]$Resource)      | Main method, accepts the source URL and resource file path |
| Add([UInt32]$Index,[String]$Name,[String]$Hash) | This adds a particular file entry to a sub folder          |
| AddFolder([String]$Type,[String]$Name)           | This adds a folder object to the output property           |
| [String] Status([UInt32]$Rank)                   | Shorthand method to quickly output the rank for status     |
| [String] Percent([UInt32]$Rank)                  | Shorthand method to quickly output the percent of a status |
| Refresh()                                        | This effectively repolls the existence of each folder/file |
| Install()                                        | This does exactly what the method says                     |
| Remove()                                         | So does this                                               |
| [Object] List()                                  | This maps out the entire list of objects in each folder    |
| [Object] Files([UInt32]$Index)                   | Effectively the same as an array selector on the output    |
| [String] ToString()                              | Just the name of the particular class                      |
 ____________________________________________________________________________________________________________
```

```
                                                                                 ___________________________________/
\_______________________________________________________________________________/ <FightingEntropy.Module.Manifest>
  <FightingEntropy.Module.Template> /¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯\
/¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯
```

When it comes to the Windows registry...? Uh- it's a bit of a complicated beast. It's simple in the sense that if you throw a [String]$RegistryPath at it...? Then, the registry will act like a loyal dog that lives for the idea of chasing down any 1) stick, 2) ball, 3) rope, or 4) whatever else. Cause, after you throw the object...? The dog is gonna BOLT after that thing, grab it with its' mouth, and come right back.

Then, the dog's basically gonna be like "Here ya go, dude."
While the dog doesn't say "Here ya go, dude"...? Well, its actions effectively match that context.
That's basically what the registry does when you throw a [String]$RegistryPath at it.

The registry itself, is a rather complicated subject. It is comprised of a series of hashtables that have KEYS, and all of those KEYS just so happen to be a collection of [String]$RegistryPath's.

This particular class is meant to inject a template into the registry so that the object in the registry can effectively reproduce the module content. Using the registry is a rather effective way to turn various elements back into a running program that maintains many of its' FILES or SETTINGS.

```
    # // ___________________________________
    # // | Template for registry injection |
    # // ¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯

    Class Template
    {
        [String]      $Source
        [String]        $Name
        [String] $Description
        [String]      $Author
        [String]     $Company
        [String]   $Copyright
        [Guid]          $Guid
        [DateTime]      $Date
        [String]     $Caption
        [String]    $Platform
        [String]        $Type
        [String]    $Registry
        [String]    $Resource
        [String]      $Module
        [String]        $File
        [String]    $Manifest
        Template([Object]$Module)
        {
            $This.Source      = $Module.Source
            $This.Name        = $Module.Name
            $This.Description = $Module.Description
            $This.Author      = $Module.Author
            $This.Company     = $Module.Company
            $This.Copyright   = $Module.Copyright
            $This.Guid        = $Module.Guid
            $This.Date        = $Module.Date
            $This.Caption     = $Module.OS.Caption
            $This.Platform    = $Module.OS.Platform
            $This.Type        = $Module.OS.Type
            $This.Registry    = $Module.Root.Registry
            $This.Resource    = $Module.Root.Resource
            $This.Module      = $Module.Root.Module
            $This.File        = $Module.Root.File
            $This.Manifest    = $Module.Root.Manifest
        }
    }
```

```
                                                                                                   ___________________________________/
\___________________________________________________________________________________/ <FightingEntropy.Module.Template>
  <FightingEntropy.Module.RootProperty> /¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯\
/¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯
```

So, the module has several components that rebuild the object in memory, as well as its' (functions/capabilities).

This class is meant to categorize and maintain those various FILES, DIRECTORIES, and REGISTRY paths.

```
    # // __________________________________________________
    # // | Represents individual paths to the module root |
    # // ¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯

    Class RootProperty
    {
        [String] $Type
        [String] $Name
        [String] $Fullname
        [UInt32] $Exists
        Hidden [String] $Path
        RootProperty([String]$Name,[UInt32]$Type,[String]$Fullname)
        {
            $This.Type     = Switch ($Type) { 0 { "Directory" } 1 { "File" } }
            $This.Name     = $Name
            $This.Fullname = $Fullname
            $This.Path     = $Fullname
            $This.TestPath()
        }
        TestPath()
        {
            $This.Exists   = Test-Path $This.Path
        }
        Create()
        {
            $This.TestPath()
            If (!$This.Exists)
            {
                Switch -Regex ($This.Name)
                {
                    "(Resource|Module)"
                    {
                        [System.IO.Directory]::CreateDirectory($This.Fullname)
                    }
                    "(File|Manifest)"
                    {
                        [System.IO.File]::Create($This.Fullname).Dispose()
                    }
                }

                $This.TestPath()
            }
        }
        Remove()
        {
            $This.TestPath()

            If ($This.Exists)
            {
                Switch -Regex ($This.Name)
                {
                    "(Resource|Module)"
                    {
                        [System.IO.Directory]::Delete($This.Fullname)
                    }
                    "(File|Manifest)"
                    {
                        [System.IO.File]::Delete($This.Fullname)
                    }
                }
                $This.Exists = 0
            }
        }
        [String] ToString()
        {
            Return $This.Path
        }
    }
```

```
                                                                                 _______________________________________/
\_______________________________________________________________________________/ <FightingEntropy.Module.RootProperty>
  <FightingEntropy.Module.Root> /¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯\
/¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯
```

This class takes the above class, and provides a manner of allowing flexibility when referencing each property. Each property has the name of what it is, but each property has subproperties that are defined by the above class, this allows the class to have more fine-grained control over its' various components.

Imagine it like this. I used to date a girl who was a bartender at a restaurant that had like, a hundred TV's. Often times, she would have to look for various remotes for EACH TV. Whenever a certain show was on that she didn't wanna watch...? Or, a customer was like “Hey, can you put it on this...?”

Uh- time to grab the remote, and change the channel. Sometimes she couldn't find the correct remote. Why...? Lots of TV's at this place. How does one manage THAT MANY TV remotes...? Well, you COULD use a UNIVERSAL REMOTE... But that's still pretty lame, because then a particular UNIVERSAL REMOTE might control MULTIPLE TV's by accident. So, that idea doesn't work all that well. Maybe it COULD...? But...

A BETTER idea, would be to allow each TV to have access to a server, and then each TV could pull a STREAM. This is basically how RTSP/H.264 (video/surveillance) equipment works, or (NVR/NETWORK VIDEO RECORDERS).

Though, it's hard to imagine that a restaurant would warrant an expense for such a system UNLESS of course, it was ALSO implementing security/surveillance streams... Because at that point, the capabilities could actually be blended together. You wanna change the channel on a particular TV...? Uh, use the smartphone to log in, and then select the drop-down tab combobox to select the CORRECT TV, and then change the channel that way.

Then, boom. You just changed the channel with a software remote. While this particular class below is not quite as sophisticated...? The idea is relatively the same. Multiple components need to exist in order to call the (function/module) into memory, and having the above class working in conjunction with this particular class allows a LOT of flexibility and control.

```
# // ________________________________________________________
# // | Represents a collection of paths for the module root |
# // ¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯

Class Root
{
    [Object] $Registry
    [Object] $Resource
    [Object]   $Module
    [Object]     $File
    [Object] $Manifest
    [Object] $Shortcut
    Root([String]$Version,[String]$Resource,[String]$Path)
    {
        $SDP           = "Secure Digits Plus LLC"
        $FE            = "FightingEntropy"
        $This.Registry = $This.Set(0,0,"HKLM:\Software\Policies\$SDP\$FE\$Version")
        $This.Resource = $This.Set(1,0,"$Resource")
        $This.Module   = $This.Set(2,0,"$Path\$FE")
        $This.File     = $This.Set(3,1,"$Path\$FE\$FE.psm1")
        $This.Manifest = $This.Set(4,1,"$Path\$FE\$FE.psd1")
        $This.Shortcut = $This.Set(5,1,"$Env:Public\Desktop\$FE.lnk")
    }
    [String] Slot([UInt32]$Type)
    {
        Return @("Registry","Resource","Module","File","Manifest","Shortcut")[$Type]
    }
    [Object] Set([UInt32]$Index,[UInt32]$Type,[String]$Path)
    {
        Return [RootProperty]::New($This.Slot($Index),$Type,$Path)
    }
    [Void] Refresh()
    {
        $This.List() | % { $_.TestPath() }
    }
    [Object[]] List()
    {
        Return $This.PSObject.Properties.Name | % { $This.$_ }
    }
    [String] ToString()
    {
        Return "<FightingEntropy.Module.Root>"
    }
}
```

```
                                                                                         _______________________________/
\_______________________________________________________________________________________/ <FightingEntropy.Module.Root>
  <FightingEntropy.Module.RegistryKeyTemp> /¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯\
/¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯
```

The Windows registry is a bit of a complicated beast. Using the `[System.IO.File]` or `[System.IO.Directory]` class is out of the equation when it comes to the registry. Normally if it wasn't the registry, and you want to keep the process relatively fast and streamlined, those type accelerators are rather perfect.

The default `[System.Management.Automation.PSDriveInfo]` object or like `Get-ItemProperty/Set-ItemProperty` functions generally work ok, however there are a couple of stipulations.

```
PS Prompt:\> Get-ItemProperty $Module.Root.Registry.Path

Source       : https://www.github.com/mcc85s/FightingEntropy
Name         : [FightingEntropy(π)]
Description  : Beginning the fight against ID theft and cybercrime
Author       : Michael C. Cook Sr.
Company      : Secure Digits Plus LLC
Copyright    : (c) 2022 (mcc85s/mcc85sx/sdp). All rights reserved.
Guid         : b139e090-db90-4536-95e8-91ea49ab74a9
```

```
Date         : 10/27/2022 8:00:08 PM
Caption      : Microsoft Windows 10.0.19045
Platform     : Win32NT
Type         : Win32_Client
Registry     : HKLM:\Software\Policies\Secure Digits Plus LLC\FightingEntropy\2022.10.1
Resource     : C:\ProgramData\Secure Digits Plus LLC\FightingEntropy\2022.10.1
Module       : C:\Windows\system32\WindowsPowerShell\v1.0\Modules\FightingEntropy
File         : C:\Windows\system32\WindowsPowerShell\v1.0\Modules\FightingEntropy\FightingEntropy.psm1
Manifest     : C:\Windows\system32\WindowsPowerShell\v1.0\Modules\FightingEntropy\FightingEntropy.psd1
PSPath       : Microsoft.PowerShell.Core\Registry::HKEY_LOCAL_MACHINE\Software\Policies\...
PSParentPath : Microsoft.PowerShell.Core\Registry::HKEY_LOCAL_MACHINE\Software\Policies\...
PSChildName  : 2022.10.1
PSDrive      : HKLM
PSProvider   : Microsoft.PowerShell.Core\Registry

PS Prompt:\>
PS Prompt:\> Get-Item "HKLM:\Software\Policies\Secure Digits Plus LLC\FightingEntropy\2022.10.1"

    Hive: HKEY_LOCAL_MACHINE\Software\Policies\Secure Digits Plus LLC\FightingEntropy

Name                           Property
----                           --------
2022.10.1                      Source      : https://www.github.com/mcc85s/FightingEntropy
                               Name        : [FightingEntropy(π)]
                               Description : Beginning the fight against ID theft and cybercrime
                               Author      : Michael C. Cook Sr.
                               Company     : Secure Digits Plus LLC
                               Copyright   : (c) 2022 (mcc85s/mcc85sx/sdp). All rights reserved.
                               Guid        : b139e090-db90-4536-95e8-91ea49ab74a9
                               Date        : 10/27/2022 8:00:08 PM
                               Caption     : Microsoft Windows 10.0.19045
                               Platform    : Win32NT
                               Type        : Win32_Client
                               Registry    : HKLM:\Software\Policies\Secure Digits Plus LLC\...
                               Resource    : C:\ProgramData\Secure Digits Plus LLC\FightingEntropy\...
                               Module      : C:\Windows\system32\WindowsPowerShell\v1.0\Modules\...
                               File        : C:\Windows\system32\WindowsPowerShell\v1.0\Modules\...
                               Manifest    : C:\Windows\system32\WindowsPowerShell\v1.0\Modules\...

PS Prompt:\>



# // ___________________________________________
# // | Works as a PowerShell Registry provider |
# // -------------------------------------------

Class RegistryKeyTemp
{
    Hidden [Microsoft.Win32.RegistryKey] $Key
    Hidden [Microsoft.Win32.RegistryKey] $Subkey
    [String]            $Enum
    [String]            $Hive
    [String]            $Path
    [String]            $Name
    Hidden [String] $Fullname
    RegistryKeyTemp([String]$Path)
    {
        $This.Fullname = $Path
        $Split         = $Path -Split "\\"
        $This.Hive     = $Split[0]
        $This.Name     = $Split[-1]
        $This.Enum     = Switch -Regex ($This.Hive)
        {
            HKLM: {"LocalMachine"} HKCU: {"CurrentUser"} HKCR: {"ClassesRoot"}
        }
        $This.Path     = $Path -Replace "$($This.Hive)\\", "" | Split-Path -Parent
    }
    Open()
    {
        $X             = $This.Enum
        $This.Key      = [Microsoft.Win32.Registry]::$X.CreateSubKey($This.Path)
    }
```

```
        Create()
        {
            If (!$This.Key)
            {
                Throw "Must open the key first."
            }

            $This.Subkey = $This.Key.CreateSubKey($This.Name)
            Write-Host "Registry [+] Path: [$($This.Fullname)]"
        }
        Add([String]$Name,[Object]$Value)
        {
            If (!$This.Subkey)
            {
                Throw "Must create the subkey first."
            }

            $This.Subkey.SetValue($Name,$Value)
            Write-Host "Key [+] Property: [$Name], Value: [$Value]"
        }
        [Void] Delete()
        {
            If ($This.Key)
            {
                $This.Key.DeleteSubKeyTree($This.Name)
                Write-Host "Registry [-] Path [$($This.Fullname)"
            }
        }
        [Void] Dispose()
        {
            If ($This.Subkey)
            {
                $This.Subkey.Flush()
                $This.Subkey.Dispose()
            }

            If ($This.Key)
            {
                $This.Key.Flush()
                $This.Key.Dispose()
            }
        }
    }
```

```
                                                                                           ___________________________________________/
\_____________________________________________________________________________/ <FightingEntropy.Module.RegistryKeyTemp>
  <FightingEntropy.Module.RegistryKeyProperty> /¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯\
/¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯
```

This object injects additional information in a similar manner to how the [OSProperty] did, where it holds a numerical index value, as well as whether the item exists or not. Testing whether a property exists or not is pretty simple when you can use the Get-ItemProperty/Set-ItemProperty functions.

But- if the path doesn't quite exist yet...? Or, suppose it does exist, but has no properties...
Then, having a function that will force either scenario to work CORRECTLY needs to have some level of control.
That's what this does.

```
    # // ________________________________________________________
    # // | Represents an individual registry key for the module |
    # // ¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯

    Class RegistryKeyProperty
    {
        Hidden [UInt32] $Index
        [String] $Name
        [Object] $Value
        [UInt32] $Exists
        RegistryKeyProperty([UInt32]$Index,[String]$Name,[Object]$Value)
        {
            $This.Index = $Index
            $This.Name  = $Name
            $This.Value = $Value
        }
        [String] ToString()
        {
            Return "<FightingEntropy.Module.RegistryKeyProperty>"
        }
    }
```

```
                                                                          ______________________________________________/
\________________________________________________________________________/ <FightingEntropy.Module.RegistryKeyProperty>
  <FightingEntropy.Module.RegistryKey> /¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯\
/¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯
```

Now, this class would typically conflict with the DEFAULT SYSTEM CLASS, [Microsoft.Win32.RegistryKey].
But, because I've studied the holy sacred art... of knowing what the hell I'm doing, from some of the most
highly seasoned experts in the field, at One Microsoft Way, Redmond WA 98052...? It doesn't do that.

Yeh. That's where they're at, just in case anybody reading this wants to know where the worlds best software
engineering takes place. Some people might try and come at me all sideways and whatnot, and say:

```
/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\

Guy : That's not where the world's best software engineering takes place.
Me  : Yeh it is.

\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/
```

End of the conversation.

```
/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\

Guy : Nah buddy, it's NOT the end of the conversation...
Me  : Yeh it is.

\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/¯¯\__/
```

They're gonna keep trying to carry on with the conversation, but- they never win that argument.
Wanna know why...? Uh- if it weren't for Microsoft... the internet would've taken way longer to come out and
develop. Then, Amazon would've taken an additional decade to come into existence, Facebook, etc. and so forth,
they basically all depended on people using Microsoft Windows to BUILD the INTERNET. So...

They didn't build the internet ALONE, but after the age of (BBS/Bulletin Board Service)...?
The internet really started with Internet Explorer.

```
# // ___________________________________________________________
# // | Represents a collection of registry keys for the module |
# // ¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯

Class RegistryKey
{
    [String] $Path
    [UInt32] $Exists
    [Object] $Property
    RegistryKey([Object]$Module)
    {
        $This.Path          = $Module.Root.Registry.Path
        $This.TestPath()
        If ($This.Exists)
        {
            $Object        = Get-ItemProperty $This.Path
            $This.Property = $This.Inject($Object)
        }
        Else
        {
            $Object        = $Module.Template()
            $This.Property = $This.Inject($Object)
        }
    }
    [Object] Inject([Object]$Object)
```

```
        {
            $Hash               = @{ }
            $Object.PSObject.Properties | ? Name -notmatch ^PS | % {

                $Item           = $This.Key($Hash.Count,$_.Name,$_.Value)
                $Item.Exists    = $This.Exists
                $Hash.Add($Hash.Count,$Item)
            }

            Return $Hash[0..($Hash.Count-1)]
        }
        TestPath()
        {
            $This.Exists = Test-Path $This.Path
        }
        [String] Status([UInt32]$Rank)
        {
            $D = ([String]$This.Property.Count).Length
            Return "({0:d$D}/{1})" -f $Rank, $This.Property.Count
        }
        Install()
        {
            $This.TestPath()

            If ($This.Exists)
            {
                Throw "Exception [!] Path already exists"
            }

            $Key             = $This.RegistryKeyTemp($This.Path)
            $Key.Open()
            $Key.Create()

            $This.Exists    = 1

            ForEach ($X in 0..($This.Property.Count-1))
            {
                $Item         = $This.Property[$X]
                $Key.Add($Item.Name,$Item.Value)
                $Item.Exists = 1
            }
            $Key.Dispose()
        }
        Remove()
        {
            $This.TestPath()

            If (!$This.Exists)
            {
                Throw "Exception [!] Registry path does not exist"
            }

            $Key              = $This.RegistryKeyTemp($This.Path)
            $Key.Open()
            $Key.Create()
            $Key.Delete()

            ForEach ($Item in $This.Property)
            {
                $Item.Exists = 0
            }

            $This.Exists     =   0
            $Key.Dispose()
        }
        [Object[]] List()
        {
            Return $This.Output
        }
        [Object] Key([UInt32]$Index,[String]$Name,[Object]$Value)
        {
            Return [RegistryKeyProperty]::New($Index,$Name,$Value)
        }
        [Object] RegistryKeyTemp([String]$Path)
        {
            Return [RegistryKeyTemp]::New($Path)
        }
        [String] ToString()
        {
            Return "<FightingEntropy.Module.RegistryKey>"
        }
    }
```

```
                                                                                    ______________________________________/
\__________________________________________________________________________________/ <FightingEntropy.Module.RegistryKey>
  <FightingEntropy.Module.FEVersion> /‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾\
/‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾
```

This is a custom class meant for categorizing the properties related to the [FightingEntropy(π)] module.

```
    # // ____________________________________________
    # // | Collects/creates versions of the module |
    # // ‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾

    Class FEVersion
    {
        [Version]       $Version
        Hidden [DateTime] $Time
        [String]           $Date
        [Guid]             $Guid
        FEVersion([String]$Line)
        {
            $This.Version = $This.Tx(0,$Line)
            $This.Time    = $This.Tx(1,$Line)
            $This.Date    = $This.MilitaryTime()
            $This.Guid    = $This.Tx(2,$Line)
        }
        FEVersion([Switch]$New,[String]$Version)
        {
            $This.Version = $Version
            $This.Time    = [DateTime]::Now
            $This.Date    = $This.MilitaryTime()
            $This.Guid    = [Guid]::NewGuid()
        }
        [String] MilitaryTime()
        {
            Return $This.Time.ToString("MM/dd/yyyy HH:mm:ss")
        }
        [String] Tx([UInt32]$Type,[String]$Line)
        {
            $Pattern = Switch ($Type)
            {
                0 { "\d{4}\.\d{2}\.\d+" }
                1 { "\d{2}\/\d{2}\/\d{4} \d{2}:\d{2}:\d{2}" }
                2 { @(8,4,4,4,12 | % { "[a-f0-9]{$_}" }) -join '-' }
            }

            Return [Regex]::Matches($Line,$Pattern).Value
        }
        [String] ToString()
        {
            Return "| {0} | {1} | {2} |" -f $This.Version,
                                            $This.Date.ToString("MM/dd/yyyy HH:mm:ss"),
                                            $This.Guid
        }
    }
```

```
                                                                                      ______________________________________/
\____________________________________________________________________________________/ <FightingEntropy.Module.FEVersion>
```

```
  <FightingEntropy.Module.ValidateFile> /¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯\
/¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯
```

This particular class doesn't necessarily NEED to exist. However, I don't like the idea of objects in the functions I work on, to become MUTATED indirectly, or to have some MUTABILITY before a process modifies something in particular.

For instance, if most of the files are there, but some of them are not...? Or, some of the files fail to have the correct hash value...? Then the installation should in theory, inform the person using the function:
“Found something that wasn't supposed to be there, bro...”

In order to prevent certain items from being mutated and stuff, recreating a similar class meant to specifically handle those exceptions is pretty crucial.

```
# // ________________________________________________________
# // | Specifically used for file hash validation/integrity |
# // ¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯

Class ValidateFile
{
    [String] $Type
    [String] $Name
    Hidden [String] $Fullname
    Hidden [String] $Source
    [String] $Hash
    [UInt32] $Match
    [String] $Compare
    ValidateFile([String]$Leaf,[Object]$File)
    {
        $This.Type     = $File.Type
        $This.Name     = $File.Name
        $This.Fullname = $File.Fullname
        $This.Hash     = $File.Hash
        $This.Source   = $File.Source

        # // _______________________
        # // | Temporary variables |
        # // ¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯

        $Content       = Invoke-WebRequest $This.Source -UseBasicParsing | % Content
        $Target        = "{0}\{1}" -f $Env:Temp, $This.Name

        If ([System.IO.File]::Exists($Target))
        {
            [System.IO.File]::Delete($Target)
        }

        If ($This.Name -match "\.+(jpg|jpeg|png|bmp|ico)")
        {
            [System.IO.File]::WriteAllBytes($Target,[Byte[]]$Content)
        }
        Else
        {
            [System.IO.File]::WriteAllText($Target,$Content,[System.Text.UTF8Encoding]$False)
        }

        # // ________________________________________
        # // | Get target hash and final comparison |
        # // ¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯

        $This.Compare  = $This.GetFileHash($Target)
        $This.Match    = $This.Hash -eq $This.Compare

        [System.IO.File]::Delete($Target)
    }
    [String] GetFileHash([String]$Path)
    {
        If (![System.IO.File]::Exists($Path))
        {
            Throw "Invalid path"
        }
```

```
            Return Get-FileHash $Path | % Hash
        }
    }
```

```
                                                                                   ________________________________________/
\_________________________________________________________________________________/ <FightingEntropy.Module.ValidateFile>
  <FightingEntropy.Module.Validate> /¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯\
/¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯
```

```
    Now, in reference to validation, sometimes I forget which files I've updated. That's what this is for. But- it
    also serves as a 1-2 knockout punch for multiple objectives, for instance, file integrity and validation.

    Lets say that I push this module over to PRODUCTION, and then people start using it to install Windows on a very
    large network of systems, or a network of networks, all with this module driving it all from the very center of
    everything.

    Will there be a system at the center of it all...? And, what would you use to manage that system, if in theory,
    there just so happened to be a system, dead center of it all, that you could configure and manage...?

    Would somebody call it the Cybercommando System Management Operations Center...? Nah...?
    Well, fine. Look, something has to be at the center of it all... can't just have a large list of machines,
    networks, and configurations that are all unmanaged... Cause that would be absolute madness.

    If you DID have something right at the center of it all, then you need a way to validate all of the information,
    so that it can detect ANOMALIES and DEFECTS, or broken code that doesn't work across all systems. Otherwise, you
    would REALLY be asking for trouble... This is meant to combat that.
```

```
    # // __________________________________________________
    # // | Container class for (manifest/file) validation |
    # // ¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯

    Class Validate
    {
        [Object] $Output
        Validate([Object]$Module)
        {
            $Hash     = @{ }
            ForEach ($Branch in $Module.Manifest.Output)
            {
                Write-Host ("Path [~] [{0}]" -f $Branch.Fullname)
                ForEach ($File in $Branch.Item)
                {
                    Write-Host "File [~] [$($File.Fullname)]"
                    $Hash.Add($Hash.Count,$This.ValidateFile($Branch.Name,$File))
                }
            }

            $This.Output = $Hash[0..($Hash.Count-1)]
        }
        [Object] ValidateFile([String]$Name,[Object]$File)
        {
            Return [ValidateFile]::New($Name,$File)
        }
        [String] BuildManifest()
        {
            $MaxName = ($This.Output.Name | Sort-Object Length)[-1]
            Return @( $This.Output | % {

                "             (`"{0}`"{1}, `"{2}`") ," -f $_.Name,
                (@(" ") * ($MaxName.Length - $_.Name.Length + 1) -join ''),
                $_.Hash

            }) -join "`n"
        }
    }
```

```
                                                                                       ___________________________________/
\_____________________________________________________________________________________/ <FightingEntropy.Module.Validate>
```

```
  <FightingEntropy.Module.Main> /¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯\
/¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯
```

Now we're at the very last class.
This one sorta throws every single class listed above, into a single INTERFACE, so to speak.

Many of the terminologies in programming overlap to some extent.
Assemblies, namespaces, functions, they all somewhat mean similar things, though they range in COMPLEXITY.

This particular class is a CLASS FACTORY.

```
# // ______________________________________________________________
# // | Factory class to control all of the aforementioned classes |
# // ¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯

Class Main
{
    [String]      $Source = "https://www.github.com/mcc85s/FightingEntropy"
    [String]        $Name = "[FightingEntropy(π)]"
    [String] $Description = "Beginning the fight against ID theft and cybercrime"
    [String]      $Author = "Michael C. Cook Sr."
    [String]     $Company = "Secure Digits Plus LLC"
    [String]   $Copyright = "(c) 2022 (mcc85s/mcc85sx/sdp). All rights reserved."
    [Guid]          $Guid = "b139e090-db90-4536-95e8-91ea49ab74a9"
    [DateTime]      $Date = "10/27/2022 20:00:08"
    [Version]    $Version = "2022.10.1"
    [Object]          $OS
    [Object]        $Root
    [Object]    $Manifest
    [Object]    $Registry
    Main()
    {
        $This.Write("Loading [~] $($This.Label())")

        $This.OS       = $This.GetOS()
        Write-Host "[+] Operating System"

        $This.Root     = $This.GetRoot()
        Write-Host "[+] Module Root"

        $This.Manifest = $This.GetManifest($This.Source,$This.Root.Resource)
        Write-Host "[+] Module Manifest"

        $This.Registry = $This.GetRegistry()
        Write-Host "[+] Module Registry"
    }
    [Object] NewVersion([String]$Version)
    {
        If ($Version -notmatch "\d{4}\.\d{2}\.\d+")
        {
            Throw "Invalid version entry"
        }

        Return [FEVersion]::New($True,$Version)
    }
    [Object[]] Versions()
    {
        $MD       = Invoke-RestMethod "$($This.Source)/blob/main/README.md?raw=true"
        Return [FEVersion[]]($MD -Split "`n" -match "\d{4}\.\d{2}\.\d+")
    }
    [String] Label()
    {
        Return "{0}[{1}]" -f $This.Name, $This.Version.ToString()
    }
    [Object] Template()
    {
        Return [Template]::New($This)
    }
    [Object] GetOS()
    {
        Return [OS]::New()
    }
    [Object] GetRoot()
    {
        $Resource = $Env:ProgramData,
                    $This.Company,
                    "FightingEntropy",
                    $This.Version.ToString() -join "\"
        $Path     = Switch -Regex ($This.OS.Type)
        {
            ^Win32_ { $Env:PSModulePath -Split ";" -match [Regex]::Escape($Env:Windir) }
            Default { $Env:PSModulePath -Split ":" -match "PowerShell"                 }
        }

        Return [Root]::New($This.Version,$Resource,$Path)
    }
    [Object] GetManifest([String]$Source,[String]$Resource)
    {
        Return [Manifest]::New($Source,$Resource)
    }
    [Object] GetRegistry()
    {
        Return [RegistryKey]::New($This)
    }
    [Void] Write([String]$Message)
    {
        [ThemeStack]::New($Message)
    }
    [Void] Write([UInt32]$Slot,[String]$Message)
    {
        [ThemeStack]::New($Slot,$Message)
    }
    [Object] File([String]$Type,[String]$Name)
    {
        Return $This.Manifest.List() | ? Type -eq $Type | ? Name -eq $Name
    }
    [Object] Class([String]$Name)
    {
        Return $This.File("Class",$Name)
    }
    [Object] Control([String]$Name)
    {
        Return $This.File("Control",$Name)
    }
    [Object] Function([String]$Name)
    {
        Return $This.File("Function",$Name)
    }
    [Object] Graphic([String]$Name)
    {
        Return $This.File("Graphic",$Name)
    }
    [Void] Refresh()
    {
        # // ____________________________________________
        # // | Tests all manifest (folder/file) entries |
        # // --------------------------------------------

        $This.Manifest.Output | % { $_.TestPath(); $_.Item | % TestPath }

        $This.Registry.TestPath()
        If ($This.Registry.Exists)
        {
            $This.Root.Registry.Exists = 1
        }
        $This.Root.Manifest.TestPath()
        $This.Root.File.TestPath()
        $This.Root.Module.TestPath()
    }
    [Void] Remove()
    {
        $This.Write(1,"Removing [~] $($This.Label())")
        # // _________________________________________
        # // | Removing [Module]: (Manifest/File/Path) |
        # // ¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯

        "Shortcut","Manifest","File","Module" | % {

            $Item = $This.Root.$_
            $Item.Remove()
            Write-Host "Removed [+] $_ | $($Item.Fullname)"
        }

        # // ______________________________________________
        # // | Removing [Manifest/Registry]: (Content/Path) |
        # // ¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯

        "Manifest","Registry" | % {

            Write-Host "Removing [~] $_"
            $This.$_.Remove()
            Write-Host "Removed [+] $_"
        }

        $This.Write(1,"Removed [+] $($This.Label())")
    }
    [Void] Install()
    {
        $This.Write(2,"Installing [~] $($This.Label())")

        $This.Manifest.Install()
        $This.Registry.Install()
        $This.Root.Module.Create()
        $This.Root.File.Create()

        # // _____________________
        # // | Build the PSM/PSD |
        # // ¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯

        $This.Module()

        # // _____________________________________________
        # // | Installs a shortcut to the module console |
        # // ¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯

        $Com  = New-Object -ComObject WScript.Shell
        $Item = $Com.CreateShortcut($This.Root.Shortcut.Path)

        # // __________________________________
        # // | Assigns details to the shortcut |
        # // ¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯

        $Item.TargetPath   = "PowerShell"

        $Command           = 'Add-Type -AssemblyName PresentationFramework',
                             'Import-Module FightingEntropy',
                             '$Module = Get-FEModule',
                             '$Module' -join ";"
        $Item.Arguments    = "-NoExit -ExecutionPolicy Bypass -Command $Command"

        $Item.Description  = $This.Description
        $Item.IconLocation = $This.Graphic("icon.ico").Fullname
        $Item.Save()

        # // _____________________________________________________
        # // | Assigns administrative privileges to the shortcut |
        # // ¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯

        $Bytes             = [System.IO.File]::ReadAllBytes($This.Root.Shortcut)
        $Bytes[0x15]       = $Bytes[0x15] -bor 0x20
                             # Set [byte] (21/0x15) bit 6 (0x20) ON... or else.
        [System.IO.File]::WriteAllBytes($This.Root.Shortcut, $Bytes)

        $This.Root.Shortcut.TestPath()
        $This.Write(2,"Installed [+] $($This.Label())")
    }
    [Void] Update()
    {
        $This.Root.File.Remove()
        $This.Root.Manifest.Remove()

        ForEach ($File in $This.Manifest.Output | % Item)
        {
            $Hash = Get-FileHash $File.Fullname | % Hash
            If ($Hash -ne $File.Hash)
            {
                $Message = @(
                "Exception [!] Type: [{0}]" -f $File.Type;
                "              File: [{0}]" -f $File.Fullname;
                "              Hash: [{0}]" -f $File.Hash;
                "          Mismatch: [{0}]" -f $Hash)

                Switch ((Get-Host).UI.PromptForChoice($Message,"Replace...?",@("&Yes","&No"),1))
                {
                    0
                    {
                        $File.Hash = $Hash
                        Write-Host ("Updated [+] File: [{0}]" -f $File.Name)
                        $File.GetContent()
                    }

                    1
                    {
                        Throw ("Exception [!] Hash mismatch, file: [{0}]" -f $File.Name)
                    }
                }
            }
        }

        $This.Module()
    }
    [Void] Module()
    {
        # // ___________________
        # // | PowerShell Full |
        # // ¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯

        If ($This.Root.Resource.Exists)
        {
            # // ______________________________
            # // | Cobble together assemblies |
            # // ¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯

            $Bin = "PresentationFramework",
                   "System.Runtime.WindowsRuntime",
                   "System.IO.Compression",
                   "System.IO.Compression.Filesystem",
                   "System.Windows.Forms"

            # // ____________________________________________
            # // | Write the module file to disk using PSM() |
            # // ¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯

            [System.IO.File]::WriteAllLines($This.Root.File,
                                            $This.PSM($Bin),
                                            [System.Text.UTF8Encoding]$False)

            # // ____________________________________
            # // | Splat the Module Manifest params |
            # // ¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯

            $Splat = $This.PSDParam($Bin)

            # // ________________________________________________
            # // | Write the PowerShell module manifest to disk |
            # // ------------------------------------------------

            New-ModuleManifest @Splat

            $This.Root.Manifest.TestPath()
        }

        # // ___________________________________________________________________
        # // | Todo | PS Core | PS Server | <- Just a manner of file selection |
        # // -------------------------------------------------------------------
    }
    [String] PSM([String[]]$Bin)
    {
        $F  = @( )

        # // __________
        # // | Header |
        # // ----------

        $F += "# Downloaded from {0}" -f $This.Source
        $F += "# {0}" -f $This.Resource
        $F += "# {0}" -f $This.Version.ToString()
        $F += "# <Types>"
        $Bin | % { $F += "Add-Type -AssemblyName $_" }

        # // ____________________________________________
        # // | Classes (To be phased out at some point) |
        # // --------------------------------------------

        $F += "# <Classes>"
        $This.Manifest.Files(0) | % {

            $F += "# <{0}/{1}>" -f $_.Type, $_.Name
            $F += "# {0}" -f $_.Fullname
            If (!$_.Content)
            {
                $_.GetContent()
            }
            $F += $_.Content
            $F += "# </{0}/{1}>" -f $_.Type, $_.Name
        }
        $F += "# </Classes>"

        # // _____________
        # // | Functions |
        # // -------------

        $F += "# <Functions>"
        $This.Manifest.Files(2)  | % {

            $F += "# <{0}/{1}>" -f $_.Type, $_.Name
            $F += "# {0}" -f $_.Fullname
            If (!$_.Content)
            {
                $_.GetContent()
            }
            $F += $_.Content
            $F += "# </{0}/{1}>" -f $_.Type, $_.Name
        }
        $F += "# </Functions>"
        $F += "Write-Theme `"Module [+] [FightingEntropy(`$([Char]960))][$($This.Version)]`" @(10,3,15,0)"


        Return $F -join "`n"
    }
    [Hashtable] PSDParam([String[]]$Bin)
    {
        Return @{

            GUID                 = $This.GUID
            Path                 = $This.Root.Manifest
            ModuleVersion        = $This.Version
```

```
                Copyright           = $This.Copyright
                CompanyName         = $This.Company
                Author              = $This.Author
                Description         = $This.Description
                RootModule          = $This.Root.File
                RequiredAssemblies  = $Bin
            }
        }
        [Object] Validation()
        {
            $This.Write(3,"Validation [~] Module manifest")

            $Validate = [Validate]::New($This)
            $Ct       = $Validate.Output | ? Match -eq 0

            Switch ($Ct.Count)
            {
                {$_ -eq 0}
                {
                    $This.Write(3,"Validation [+] All files passed validation")
                }
                {$_ -gt 0}
                {
                    $This.Write(1,"Validation [!] ($($Ct.Count)) files failed validation")
                    $Ct
                }
            }

            Return $Validate
        }
    }
```

```
____________________________________________________________________________________________________________________
| Main()                                                  | Entry into the function, combines everything         |
| [Object] NewVersion([String]$Version)                   | Creates a brand new version/guid/date                |
| [Object[]] Versions()                                   | Collects the existing versions from github markdown  |
| [String] Label()                                        | Returns the string [FightingEntropy(π)][2022.10.1]   |
| [Object] Template()                                     | Generates a brand new filled out registry template   |
| [Object] GetOS()                                        | Assembles all properties from [OS]::New()            |
| [Object] GetRoot()                                      | Assmebles all properties from [Root]::New()          |
| [Object] GetManifest([String]$Source,[String]$Resource) | Assembles all properties from [Manifest]::New()      |
| [Object] GetRegistry()                                  | Assembles all properties from [RegistryKey]::New()   |
| [Void] Write([String]$Message)                          | Returns default theme write-host [ThemeStack]::New() |
| [Void] Write([UInt32]$Slot,[String]$Message)            | Returns custom theme write-host [ThemeStack]::New()  |
| [Object] File([String]$Type,[String]$Name)              | Returns a particular file from the manifest          |
| [Object] Class([String]$Name)                           | Returns a particular CLASS file from the manifest    |
| [Object] Control([String]$Name)                         | Returns a particular CONTROL file from the manifest  |
| [Object] Function([String]$Name)                        | Returns a particular FUNCTION file from the manifest |
| [Object] Graphic([String]$Name)                         | Returns a particular GRAPHIC file from the manifest  |
| [Void] Remove()                                         | Removes the module, and all traces of it             |
| [Void] Install()                                        | Installs the module, and all files within it         |
| [Void] Module()                                         | Creates the module (PSM/file) and (PSD/manifest)     |
| [Void] Update()                                         | Updates the module (PSM/file) and (PSD/manifest)     |
| [String] PSM([String[]]$Bin)                            | Generates a PSM file, to call it from PowerShell     |
| [Hashtable] PSDParam([String[]]$Bin)                    | Generates splatted [Hashtable] params for PSD file   |
| [Object] Validation()                                   | Returns an instance of the [Validate] object         |
‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾
```

```
                                                                                      ________________________________/
\____________________________________________________________________________________/ <FightingEntropy.Module.Main>
  Conclusion /‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾\
/‾‾‾‾‾‾‾‾‾‾‾‾
```

I'm not gonna lie.
This is a lot of work, to put this thing together into these files to document where the process 1) IS,
2) what it DOES, and that what is shown 3) WORKS about as well as it 4) LOOKS.

Ya know...? Pretty tall order. Then, I gotta make it really (simple/easy to understand). And if I don't succeed
at doing that at the tail end of it all...? Then, basically I suck at life. Might as well go to the nearest
store that sells white flags, and then just surrender, and give up.

Cause. The challenge was WAY too difficult to complete. End of story.

Yeah, I'm just kidding. I'm not looking to give up, but... it's a lot harder than it looks.
Here's the final piece of the puzzle.

```
# // ___________________________________________________________________
# // | Installs the PowerShell module, [FightingEntropy(π)][2022.10.1] |
# // ¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯

Function FightingEntropy.Module
{

    # // __________________________________________________________
    # // | < ... where all of the above classes actually go ... > |
    # // ¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯

    # // _______________________________________________________
    # // | Single class that controls all of the above classes |
    # // ¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯

    [Main]::New()
}

$Module = FightingEntropy.Module
#-----1   ---------------------2
# // _________________________________________________________________________________________________
# // |¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯|
# // | 1) Variable that allows all of the methods and properties within EACH class to be accessible. |
# // | 2) Function cast to that variable allowing anybody who uses it, to be as powerful as god.     |
# // |                                                                                               |
# // | Just kidding... nobody can ever be THAT powerful. Even if someone could...? It's not allowed. |
# // | Imagine if it WAS that (powerful/allowable), though...? The POWER would be OVERWHELMING...    |
# // |                                                                                               |
# // | Like, imagine having access to using 'IDDQD' in Doom, but- in real life. The monsters would   |
# // | literally spend the rest of eternity making grunting noises and trying to attack you... cause |
# // | they're evil demons. Everybody knows, once an evil demon sees ya...? They will never stop     |
# // | trying to attack ya. It's what they live for... being miserable demons that attack ya.        |
# // |                                                                                               |
# // | But- oh boy. They can't do any damage cause you're god. In the game, that is. Not real life.  |
# // |_______________________________________________________________________________________________|
# // ¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯


# // _______________________
# // | Installs the module |
# // ¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯

$Module.Install()

# // ______________________
# // | Removes the module |
# // ¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯

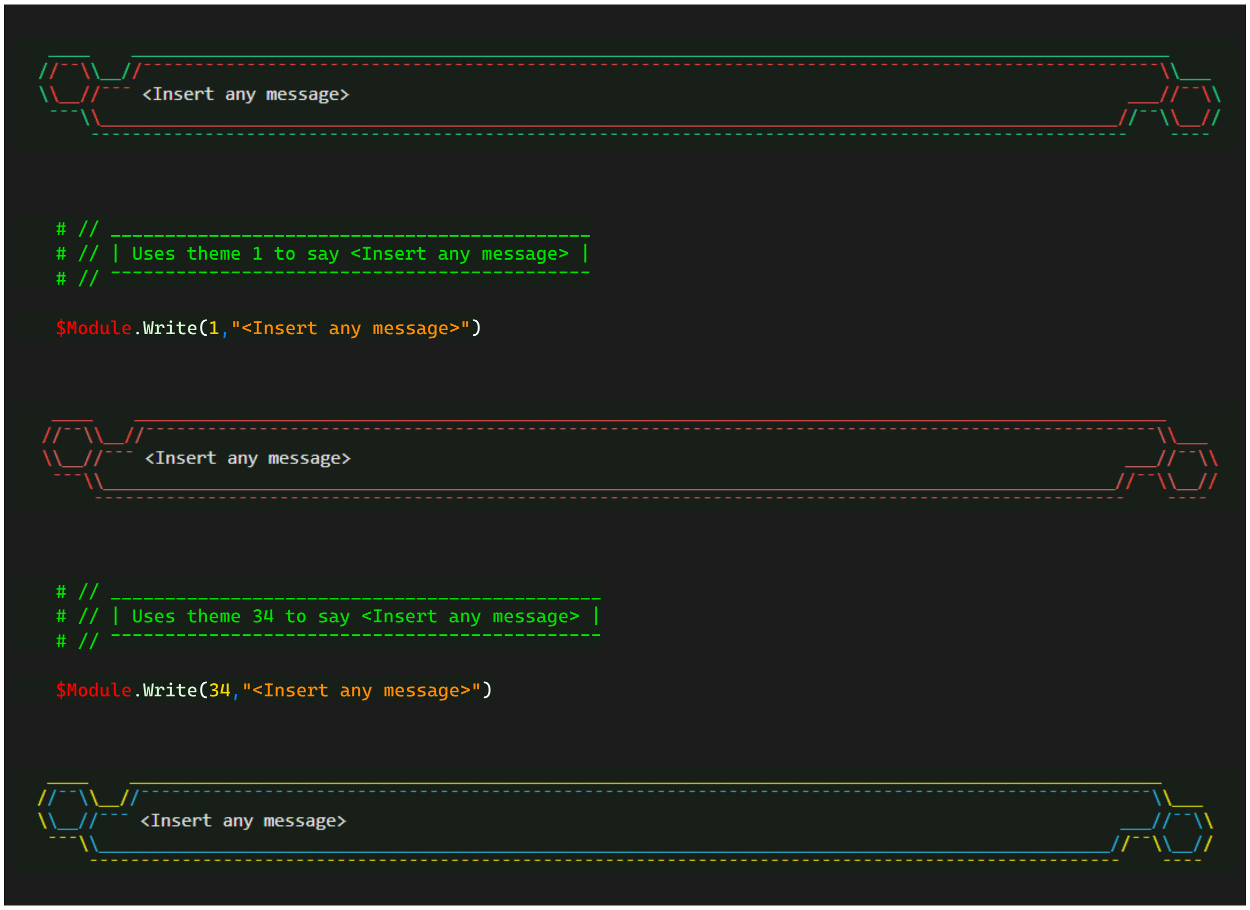
$Module.Remove()

# // ______________________________
# // | Validates all of the files |
# // ¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯

$Module.Validation()

# // _______________________________________________________
# // | Uses the default theme to say: <Insert any message> |
# // ¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯

$Module.Write("<Insert any message>")
```



```
  ____    __________________________________________________________________________________________
//¯¯\\__//¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯\\___
\\__//¯¯¯ <Insert any message>                                                               ___//¯¯\\
 ¯¯¯\\__________________________________________________________________________________//¯¯\\__//
     ¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯    ¯¯¯¯


    # // ____________________________________________
    # // | Uses theme 1 to say <Insert any message> |
    # // ¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯

    $Module.Write(1,"<Insert any message>")


  ____    __________________________________________________________________________________________
//¯¯\\__//¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯\\___
\\__//¯¯¯ <Insert any message>                                                               ___//¯¯\\
 ¯¯¯\\__________________________________________________________________________________//¯¯\\__//
     ¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯    ¯¯¯¯


    # // _____________________________________________
    # // | Uses theme 34 to say <Insert any message> |
    # // ¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯

    $Module.Write(34,"<Insert any message>")


  ____    __________________________________________________________________________________________
//¯¯\\__//¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯\\___
\\__//¯¯¯ <Insert any message>                                                               ___//¯¯\\
 ¯¯¯\\__________________________________________________________________________________//¯¯\\__//
     ¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯    ¯¯¯¯
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Look. Sometimes you just gotta call it like you see it... programming can be pretty tough.
You know what won't be so tough though, after people start using this really useful module...?

[FightingEntropy(π)][2022.10.1].
Might not even be that version right there, either.

Nah. Might be a totally different version that hasn't even been a figment of ANYBODY'S imagination.
But eventually...? It will be, what the experts and professionals all around the world, will use...
...when they need to get the job done.

Making short work of 1) PROBLEMS, and 2) POTENTIAL PROBLEMS.

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                                                                                                                    ____________/
\__________________________________________________________________________________________________________/ Conclusion
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|                                   Michael C. Cook Sr. |
|                                     Security Engineer |
|                                  Secure Digits Plus LLC |
|_______________________________________________________|
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