CompTIA Security+® Lab Series

Lab 10: Analyze and Differentiate Types of Attacks Using Windows Commands

CompTIA Security+® Domain 3 - Threats and Vulnerabilities

Objective 3.2: Analyze and differentiate among types of attacks

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Contents

Introduction

This lab is part of a series of lab exercises designed through a grant initiative by the Center for Systems Security and Information Assurance (CSSIA) and the Network Development Group (NDG), funded by the National Science Foundation's (NSF) Advanced Technological Education (ATE) program Department of Undergraduate Education (DUE) Award No. 0702872 and 1002746. This work has been adapted by The Department of Labor (DOL) Trade Adjustment Assistance Community College and Career Training (TAACCCT) Grant No. TC-22525-11-60-A-48. This series of lab exercises is intended to support courseware for CompTIA Security+® certification.

By the end of this lab, students will be able to view resources on the network, map network drives, and perform administration on remote systems from the command line. Many commands built into the operating system, such as the net command, can be used to access resources. These commands can be used by an insider to attack the network.

This lab includes the following tasks:

1 – Viewing and Accessing Network Resources
2 – Using PSEXEC to Connect to a Remote System
3 – Stopping, Starting, and Removing Services

Objective: Analyze and Differentiate Among Types of Attacks

While hackers may utilize various tools to attack network systems, there are many tools built into the Windows operating system, which will perform similar tasks. Many individuals are unaware of how to utilize these commands to attack a network. These Windows commands are very powerful if an attacker has internal network access.

For this lab, the following terms and concepts will be of use:

psexec – This is a Sysinternals (a subsidiary of Microsoft) tool that will allow you to execute a command on a remote Windows machine. In order to execute a command on a remote system, you must have the credentials of an account on the remote machine.

net command – The net command has been around since the days of MS-DOS. It helps Windows users perform tasks like creating users, stopping services, mapping drives, and viewing other computers on the network.

Command Shell – The Windows command shell allows users to interact with the operating system from a command line environment. Virtually anything that can be done in the Graphical User Interface, or GUI, in Windows can be done from the command line. A command shell can be sent from a victim's machine to an attacker's machine. Once the attacker has a command shell connected to the victim's machine, they can run commands on the remote system, and perform administrative tasks.

SC Command – The sc command will allow you to stop, start, and install services.

Hostname command – The hostname command can be used to view the name of the computer on any Microsoft, Linux, UNIX, or Mac OS X operating system.

Pod Topology

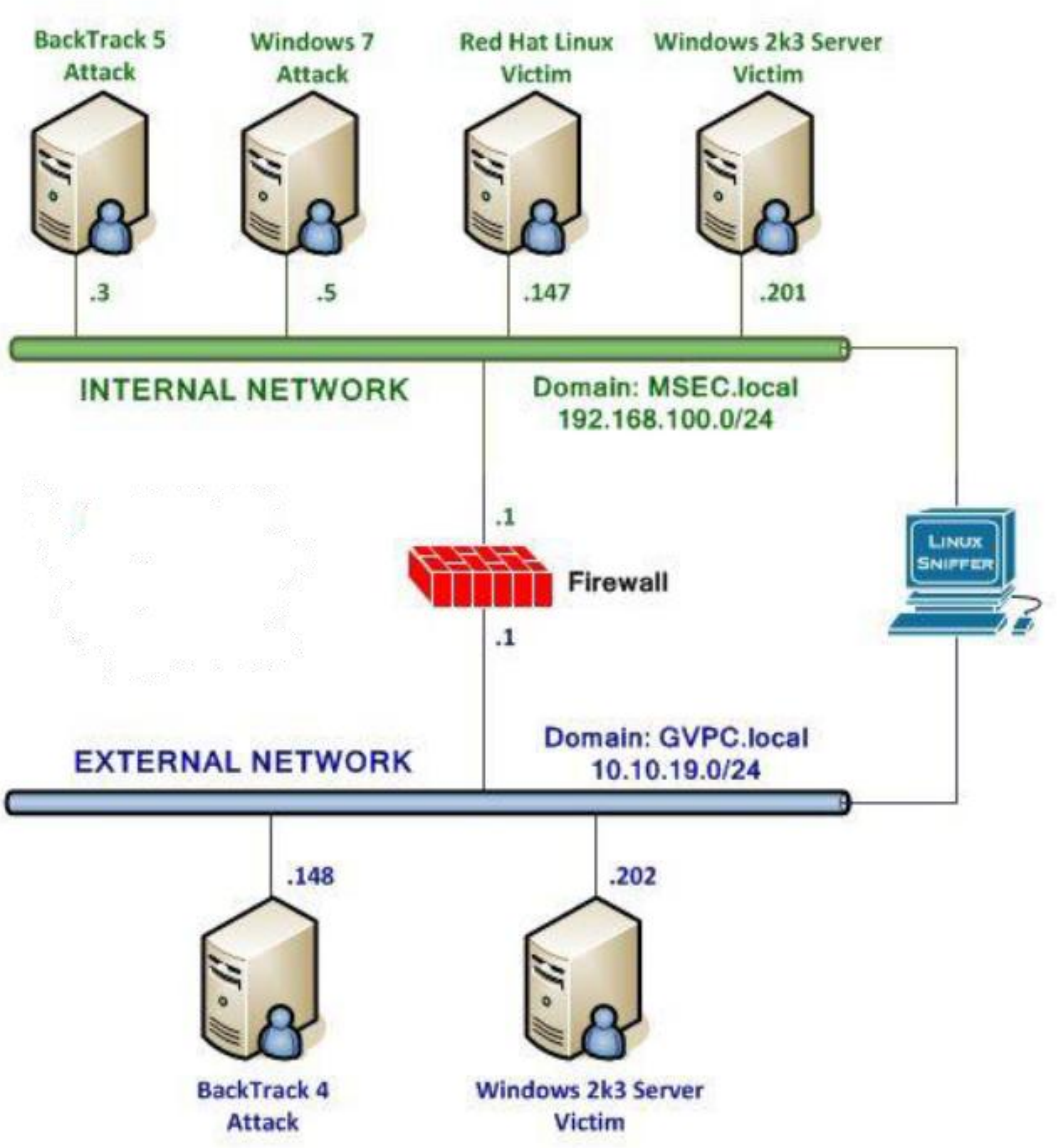


Figure 1: Topology

Lab Settings

The information in the table below will be needed in order to complete the lab. The task sections below provide details on the use of this information.

Required Virtual Machines and Applications

Log in to the following virtual machines before starting the tasks in this lab:

Windows 7 Internal Attack Machine	192.168.100.5
Windows 7 student password	Password

Windows 7 Internal Attack Login:

1. Click on the **Windows 7 Internal Attack** icon on the topology.
2. Enter the username, **student** (verify the username with your instructor).
3. Type in the password, **password** and hit enter to log in (verify the password with your instructor).

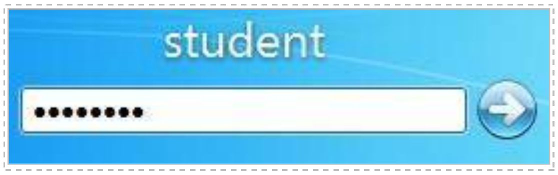


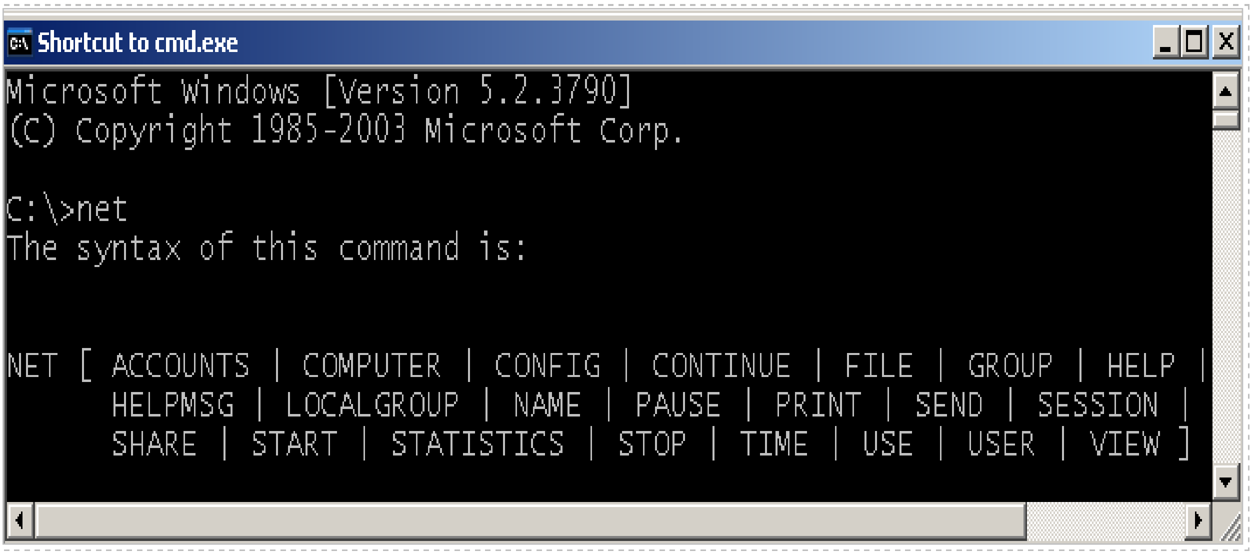
Figure 2: Windows 7 login

1 Viewing Network Resources

The **net** command can be used to perform a variety of tasks within Windows, including:

- Viewing network resources
- Mapping Drives
- Managing User Accounts
- Starting and Stopping Services.

The net command has actually been part of the Microsoft Operating system dating all of the way back to MS-DOS. You can display the options available with net by typing **net**.



```
Microsoft Windows [Version 5.2.3790]
(C) Copyright 1985-2003 Microsoft Corp.

C:\>net
The syntax of this command is:


NET [ ACCOUNTS | COMPUTER | CONFIG | CONTINUE | FILE | GROUP | HELP |
      HELPMSG | LOCALGROUP | NAME | PAUSE | PRINT | SEND | SESSION |
      SHARE | START | STATISTICS | STOP | TIME | USE | USER | VIEW ]
```

Figure 3: The Net Command

1.1 Using the Net Command to View Resources

Using the Net Command to View Resources on a Microsoft Network

1. Click on the icon representing the Windows 7 Internal Attack Machine. Open a command prompt on the machine by double-clicking on the cmd-shortcut on the desktop.

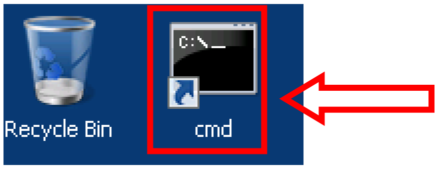
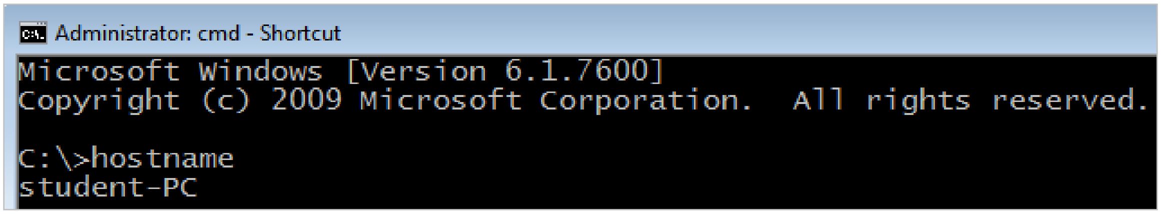


Figure 4: The Windows Command Prompt

You can use the hostname command to view the name of a computer on any Microsoft operating system, as well on computers on Linux, UNIX, and Mac OS X.

2. Type the following command to determine the computer name of your system:
   C:\>**hostname**

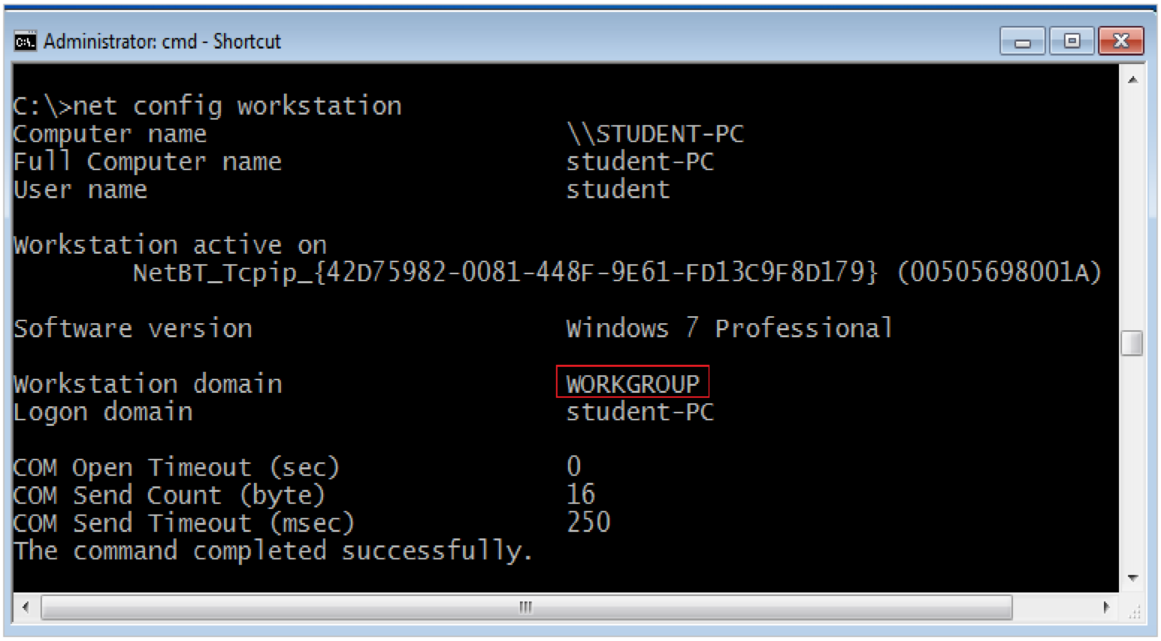


```
Microsoft Windows [Version 6.1.7600]
Copyright (c) 2009 Microsoft Corporation.  All rights reserved.

C:\>hostname
student-PC
```

Figure 5: The hostname Command

Your computer name on the Windows 7 Internal Attack Machine should be **student-PC**. The hostname command gives you the computer name only. The **net config** workstation command is much more robust and can give you the computer name, workgroup, and other details about the computer including the version of the operating system.

3. Type the following command to view the workstation domain your computer belongs to:
   C:\>**net config workstation**

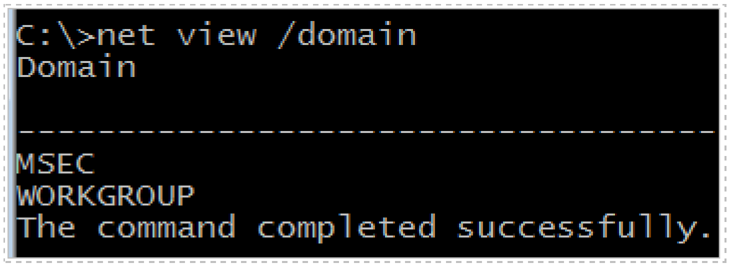


```
C:\>net config workstation
Computer name                        \\STUDENT-PC
Full Computer name                   student-PC
User name                            student

Workstation active on
        NetBT_Tcpip_{42D75982-0081-448F-9E61-FD13C9F8D179} (00505698001A)

Software version                     Windows 7 Professional

Workstation domain                   WORKGROUP
Logon domain                         student-PC

COM Open Timeout (sec)               0
COM Send Count (byte)                16
COM Send Timeout (msec)              250
The command completed successfully.
```

Figure 6: Viewing the Workgroup by using net config workstation

The net command can also be used to view all workgroups and domains on the network.

4. To view all of the domains and workgroups on the network, type the following:
   C:\>**net view /domain**

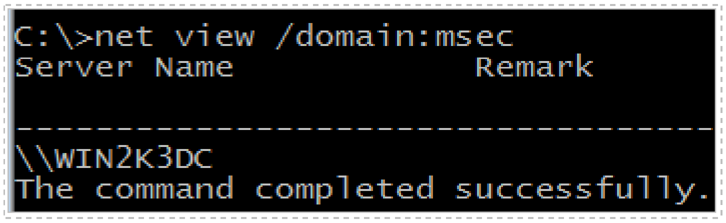


```
C:\>net view /domain
Domain

-------------------------------------
MSEC
WORKGROUP
The command completed successfully.
```

Figure 7: Viewing the Domains and Workgroups on the Network

In the figure above, MSEC is the name of the local Windows domain in the lab. WORKGROUP is the same windows workgroup listed with the **net config workstation** command (as shown in step 3).

5. To view all of the computers in a specific domain or workgroup, type the following command, followed by the name of the domain or workgroup:
   C:\>**net view /domain:msec**



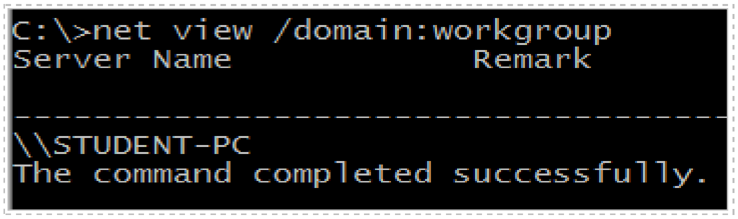
```
C:\>net view /domain:msec
Server Name            Remark

-------------------------------------
\\WIN2K3DC
The command completed successfully.
```

Figure 8: Viewing the Computers within a Specific Domain

The Windows 7 Internal Attack Machine can view domain information with the **net view** command even though it is not a member of the domain.

You should see one computer named **WIN2kDC3** within the *MSEC* domain.

6. To view all of the computers in the other workgroup, type the following command, followed by the name of the workgroup:
   C:\>**net view /domain:workgroup**

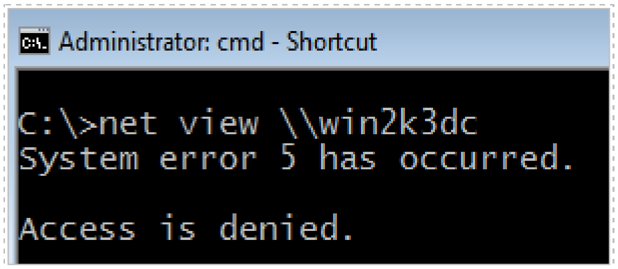


```
C:\>net view /domain:workgroup
Server Name            Remark

-------------------------------------
\\STUDENT-PC
The command completed successfully.
```

Figure 9: The Name of the Computers in the Workgroup

You should see one computer named **student-PC** in the workgroup.

7. To attempt to view resources on the remote machine, type the following:
   C:\>**net view \\win2k3dc**



```
C:\>net view \\win2k3dc
System error 5 has occurred.

Access is denied.
```

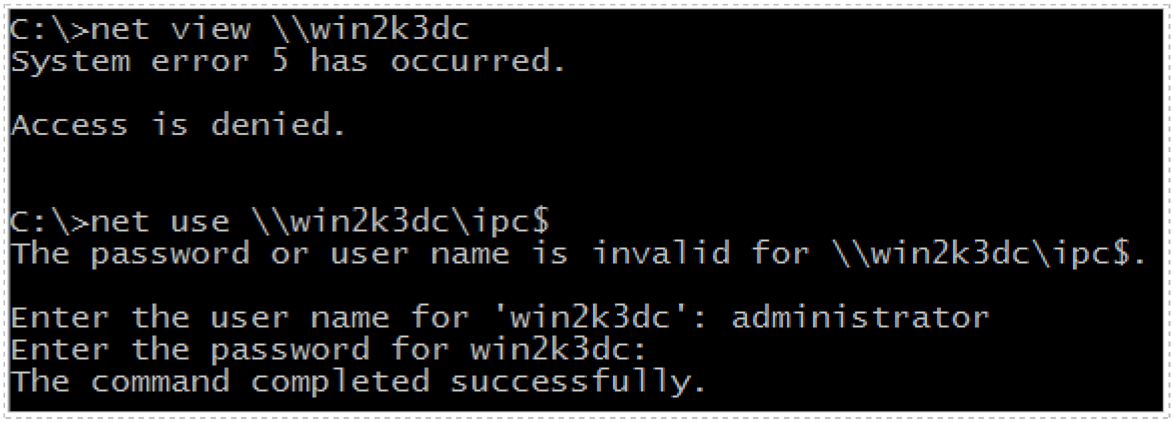
Figure 10: Access to the Remote Resources are Denied

You are unable to view the resources on the remote machine because you are not using the correct credentials. To successfully connect, use the username and password of an account on the remote machine. Mapping to the IPC$ Share will fix this problem.

8. Type the following command to map the IPC$ share on the remote machine.
   C:\>**net use \\win2k3dc\ipc$**

Type **administrator** for the username and **password** for the password.

For security reasons, the password will not be displayed on the screen.

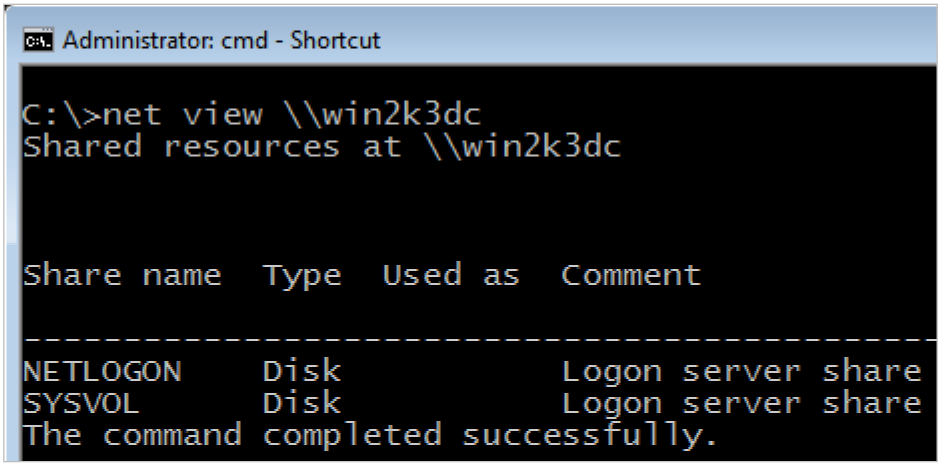


```
C:\>net view \\win2k3dc
System error 5 has occurred.

Access is denied.


C:\>net use \\win2k3dc\ipc$
The password or user name is invalid for \\win2k3dc\ipc$.

Enter the user name for 'win2k3dc': administrator
Enter the password for win2k3dc:
The command completed successfully.
```

Figure 11: Successfully Mapping the IPC$ Share

After successfully connecting to the remote machine, you will be able to view the resources on the remote machine including items like network shares.

9. To attempt to view resources on the remote machine, type the following:
   C:\>**net view \\win2k3dc**

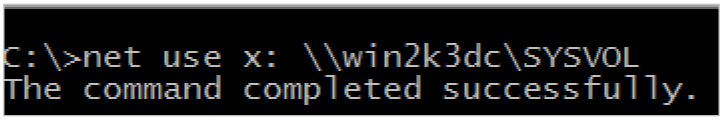


```
C:\>net view \\win2k3dc
Shared resources at \\win2k3dc



Share name   Type   Used as   Comment

-----------------------------------------------
NETLOGON     Disk             Logon server share
SYSVOL       Disk             Logon server share
The command completed successfully.
```

Figure 12: Successfully Accessing Remote Resources

The *NETLOGON* and *SYSVOL* shares indicate that the Windows 2003 server is a Domain Controller. These shares are used by Active Directory, the Windows Directory Service. The net use command can be utilized to map a network drive on a remote network.

10. Map a drive to the **SYSVOL** share on the Windows 2003 by typing the following:
    C:\>**net use x : \\win2k3dc\sysvol**



```
C:\>net use x: \\win2k3dc\SYSVOL
The command completed successfully.
```

Figure 13: Successfully Mapping a Drive

When mapping a drive, you can use any letter for the drive other than the drive letters that are currently in use by your hard drive and CD/DVD drive. Once the drive is mapped, you can download or upload files to mapped drives similarly.

11. You can view the mapped drive by clicking on **Start** and selecting **Computer**.

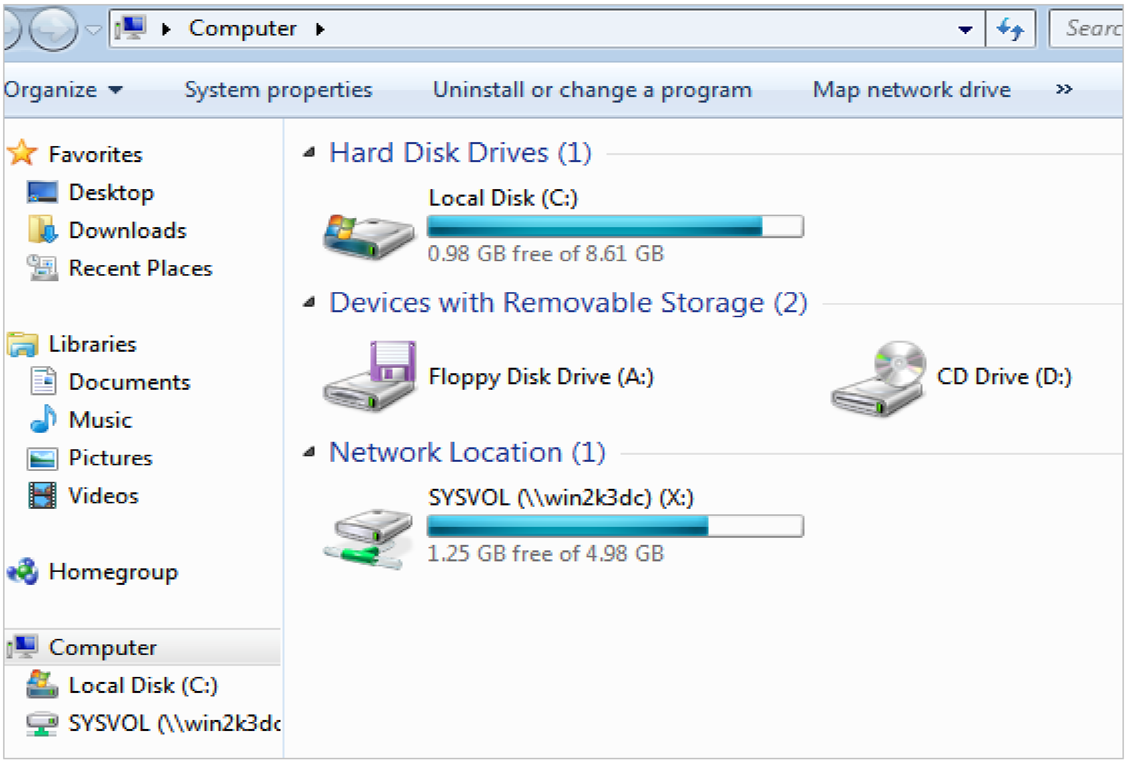
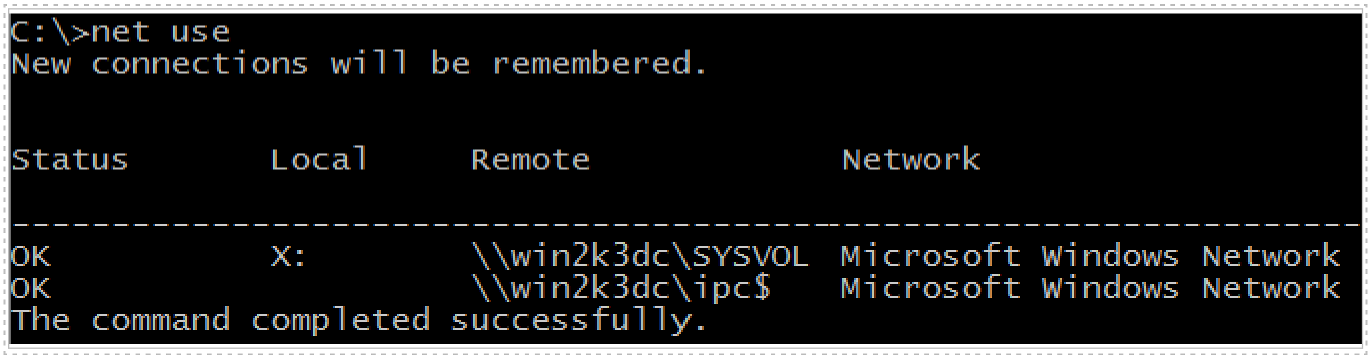


Figure 14: Viewing the Mapped Drive in Computer

12. View the list of all mapped drives can also be viewed by typing **net use**.
C:\>**net use**

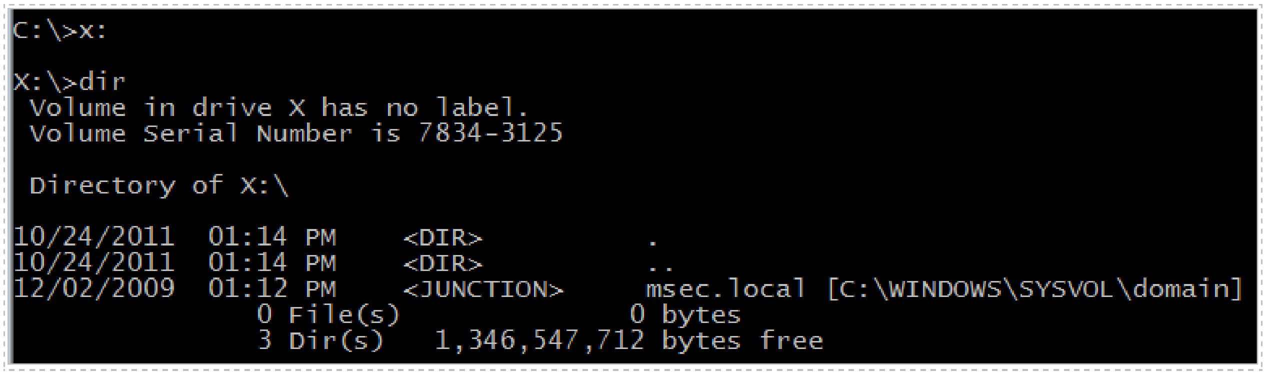


```
C:\>net use
New connections will be remembered.


Status       Local     Remote                Network

-------------------------------------------------------------------------------
OK           X:        \\win2k3dc\SYSVOL     Microsoft Windows Network
OK                     \\win2k3dc\ipc$       Microsoft Windows Network
The command completed successfully.
```

Figure 15: Viewing the Mapped Drives from the Command Line

The X: drive is listed as a mapped drive to the *SYSVOL* folder on the Win2k3dc machine.

13. Type the following to switch to the x: drive and view the contents of the share:
    C:\>**x:**
    X:\>**dir**

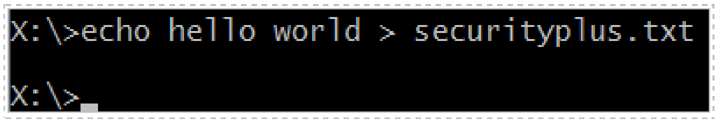


```
C:\>x:

X:\>dir
 Volume in drive X has no label.
 Volume Serial Number is 7834-3125

 Directory of X:\

10/24/2011  01:14 PM    <DIR>          .
10/24/2011  01:14 PM    <DIR>          ..
12/02/2009  01:12 PM    <JUNCTION>     msec.local [C:\WINDOWS\SYSVOL\domain]
               0 File(s)              0 bytes
               3 Dir(s)   1,346,547,712 bytes free
```

Figure 16: Viewing the Resources on the Remote System

You can add a file to the share on the remote server by using the echo command.

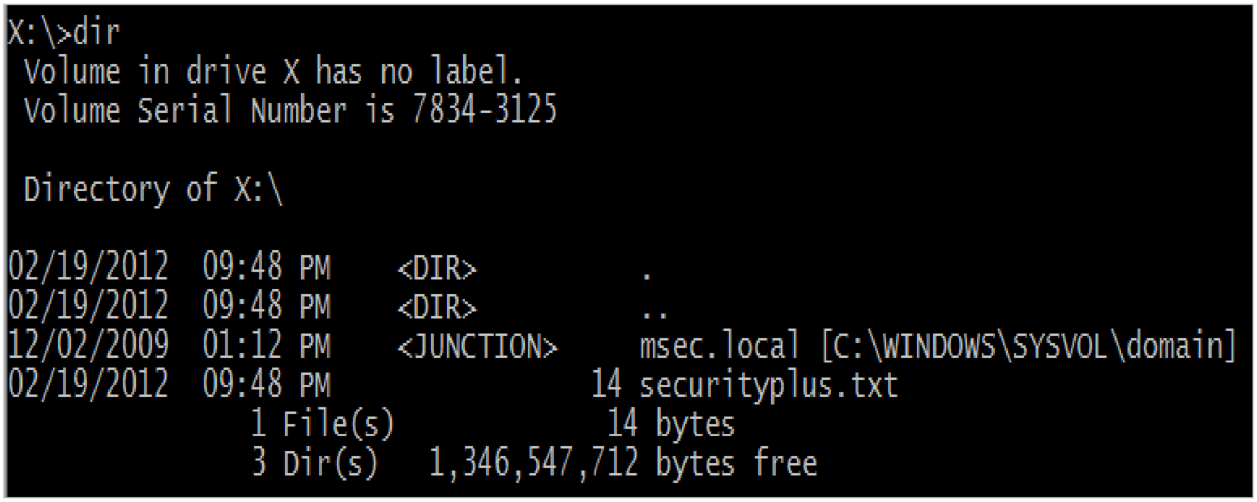
14. Type the following to add a file called securityplus.txt to the remote share:
    X:\>**echo hello world > securityplus.txt**



```
X:\>echo hello world > securityplus.txt

X:\>
```

Figure 17: Echo Hello World

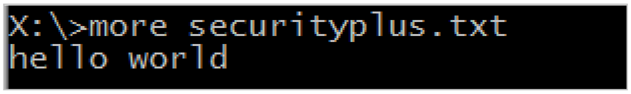
15. Type the following to view the newly added file on the remote share:
    X:\>**dir**



```
X:\>dir
 Volume in drive X has no label.
 Volume Serial Number is 7834-3125

 Directory of X:\

02/19/2012  09:48 PM    <DIR>          .
02/19/2012  09:48 PM    <DIR>          ..
12/02/2009  01:12 PM    <JUNCTION>     msec.local [C:\WINDOWS\SYSVOL\domain]
02/19/2012  09:48 PM                14 securityplus.txt
               1 File(s)             14 bytes
               3 Dir(s)   1,346,547,712 bytes free
```

Figure 18: The Windows Command Prompt

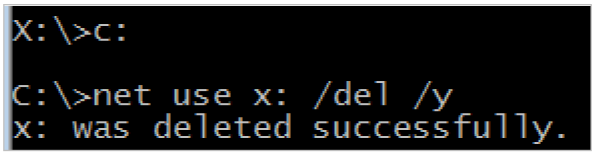
16. View what is written in the file by typing the following command:
    X:\>**more securityplus.txt**



```
X:\>more securityplus.txt
hello world
```

Figure 19: Viewing the contents of the Text File

17. Delete the mapped drive by typing the following commands:
    X:\>c:
    C:\>**net use x: /del /y**



```
X:\>c:

C:\>net use x: /del /y
x: was deleted successfully.
```

Figure 20: The Map Drive is deleted

18. Close the Windows 7 Internal Attack Machine command prompt.

1.2 Conclusion

The net command has many uses. It can be used to view information about a computer, view resources on a network, and even map network drives. In order to map a network drive, the appropriate credentials of an account on the remote machine are needed.

1.3 Discussion Questions

1. What is the command to view your workgroup?
2. What is the command to enumerate all of the domains on the network?
3. What is the command to map a drive?
4. What is the name of the share that will give you access to all resources on the remote machine?

2 Using PSEXEC to Connect to a Remote System

PSEXEC is a Sysinternals (a subsidiary of Microsoft) tool that will allow you to execute a command on a remote Windows machine. In order to execute a command on a remote system, you must have the credentials of an account on the remote machine. The command is not built into the Windows operating systems. It must be downloaded from the following link: http://technet.microsoft.com/en-us/sysinternals/bb897553

2.1 Using PSEXEC

The psexec command can be used to run a command on a remote system. Before using the psexec command, the user must agree to the End User License Agreement (EULA).

1. Log in to the **Windows 7 Internal Attack Machine** system. Open a command prompt by double clicking on the **cmd.exe** shortcut on the desktop.

If you are already logged into the machine, you may skip this step.

2. Type the following to open the **Sysinternals** EULA screen:
   C:\>**psexec**

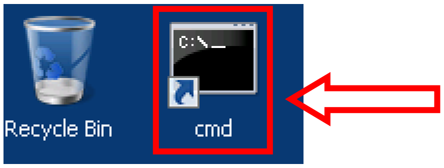
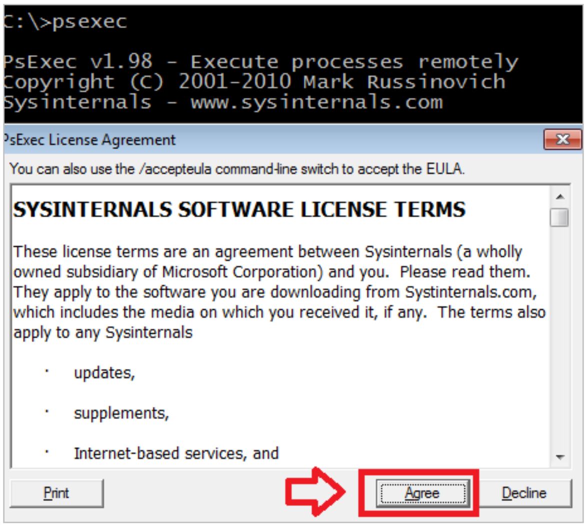


Figure 21: The Windows Command Prompt

2. Read the EULA and click **Agree,** if you agree to the license terms.



```
C:\>psexec

PsExec v1.98 - Execute processes remotely
Copyright (C) 2001-2010 Mark Russinovich
Sysinternals - www.sysinternals.com
```

PsExec License Agreement

You can also use the /accepteula command-line switch to accept the EULA.

SYSINTERNALS SOFTWARE LICENSE TERMS

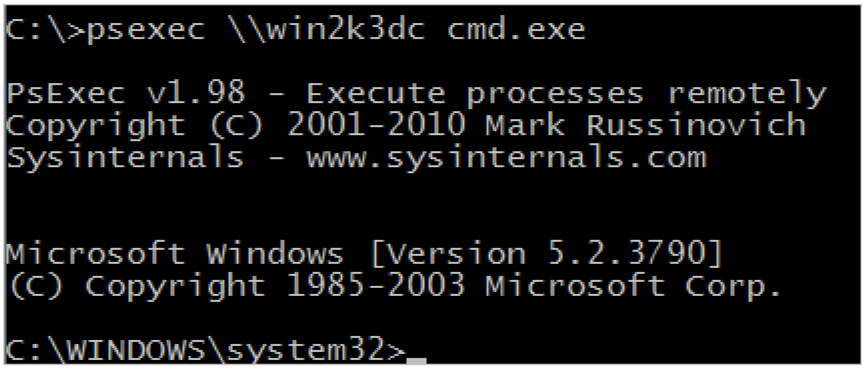
These license terms are an agreement between Sysinternals (a wholly owned subsidiary of Microsoft Corporation) and you. Please read them. They apply to the software you are downloading from Systinternals.com, which includes the media on which you received it, if any. The terms also apply to any Sysinternals

- updates,
- supplements,
- Internet-based services, and

Figure 22: The EULA for PSEXEC

If the IPC$ share is mapped, there is no need to provide credentials when you use the psexec command. If the IPC$ share is not mapped, refer to Task 1, Step 8 for the procedure to map the share. You can also provide a username and password with the psexec command if you do not wish to map the IPC$ share.

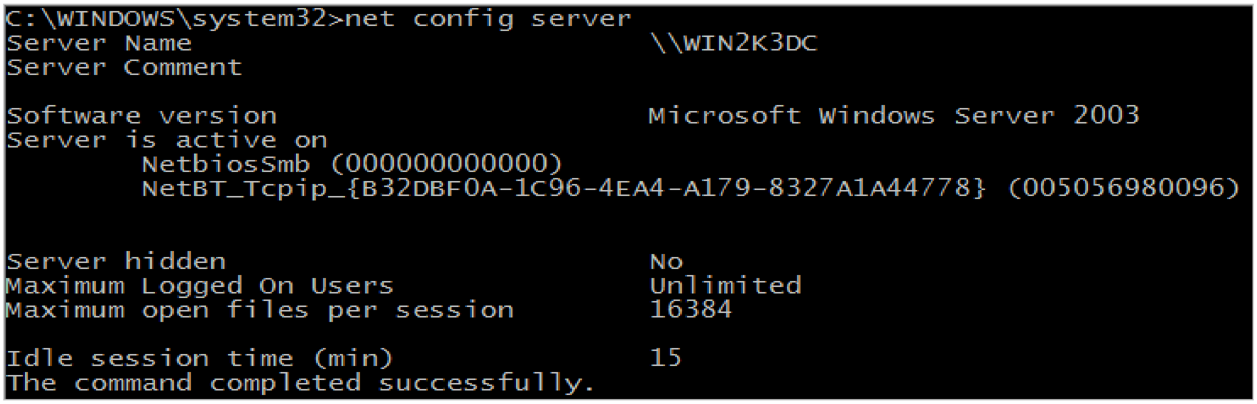
3. Type the following to obtain a command shell on the remote 2003 server:
   C:\>**psexec \\win2k3dc cmd.exe**



```
C:\>psexec \\win2k3dc cmd.exe

PsExec v1.98 - Execute processes remotely
Copyright (C) 2001-2010 Mark Russinovich
Sysinternals - www.sysinternals.com


Microsoft Windows [Version 5.2.3790]
(C) Copyright 1985-2003 Microsoft Corp.

C:\WINDOWS\system32>
```

Figure 23: Getting a Remote Shell Using PSEXEC

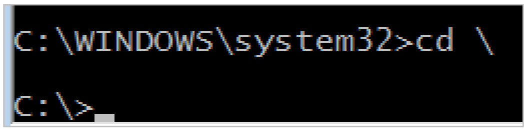
4. Type the following command to verify that you are on the remote machine:
   C:\WINDOWS\system32>**net config server**



```
C:\WINDOWS\system32>net config server
Server Name                           \\WIN2K3DC
Server Comment

Software version                      Microsoft Windows Server 2003
Server is active on
        NetbiosSmb (000000000000)
        NetBT_Tcpip_{B32DBF0A-1C96-4EA4-A179-8327A1A44778} (005056980096)


Server hidden                         No
Maximum Logged On Users               Unlimited
Maximum open files per session        16384

Idle session time (min)               15
The command completed successfully.
```

Figure 24: The NET CONFIG SERVER Command

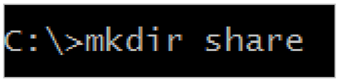
5. Type the following command to switch to the root of the C Drive:
   C:\>**cd **



```
C:\WINDOWS\system32>cd \

C:\>
```

Figure 25: Switching to the Root of the C Directory

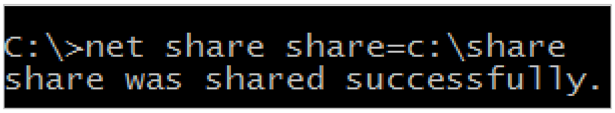
6. Make a directory called share on the root of the C: Drive by typing the following:
   C:\>**mkdir share**



```
C:\>mkdir share
```

Figure 26: Making a Directory Called Share on the Root of C:

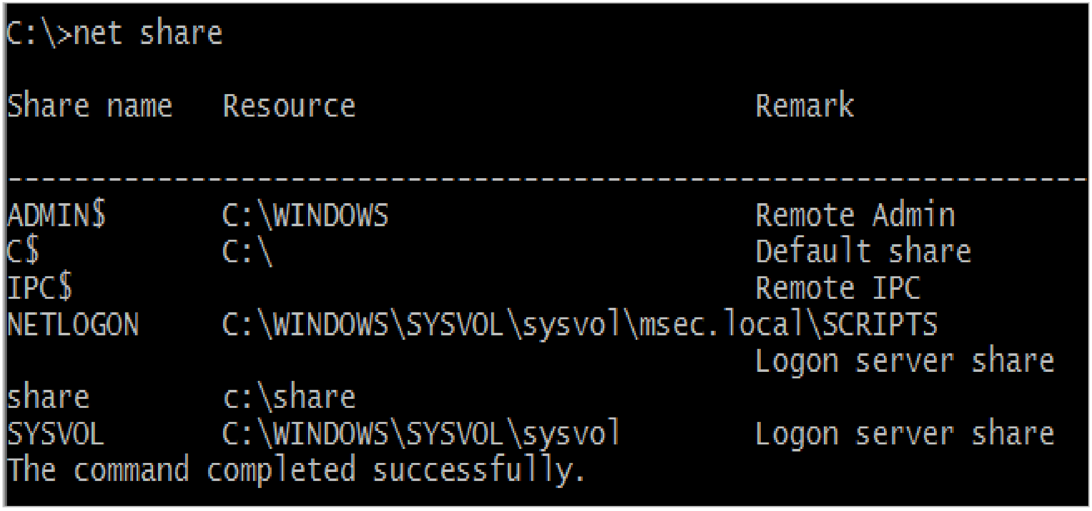
7. To share the newly created share directory, type the following in the root directory:
   C:\>**net share share=c:\share**



```
C:\>net share share=c:\share
share was shared successfully.
```

Figure 27: Sharing the Share Directory

8. Type the following command to view all of the shares on the system:
   C:\>**net share**

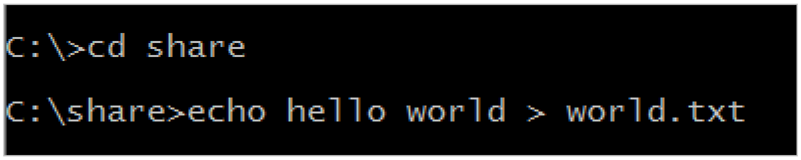


```
C:\>net share

Share name   Resource                        Remark

-------------------------------------------------------------------------------
ADMIN$       C:\WINDOWS                      Remote Admin
C$           C:\                             Default share
IPC$                                         Remote IPC
NETLOGON     C:\WINDOWS\SYSVOL\sysvol\msec.local\SCRIPTS
                                             Logon server share
share        c:\share
SYSVOL       C:\WINDOWS\SYSVOL\sysvol        Logon server share
The command completed successfully.
```

Figure 28: The Shares on the Windows 2003 Server

The **c:\share** was created by using the net share command. The NETLOGON and SYSVOL shares were created when Active Directory was installed. The C$ and Admin$ shares are special administrative shares that map to the C Drive and Windows folder respectively.

9. Create a file within the share folder called world.txt by typing the following:
   C:\cd share
   C:\share>**echo hello world > world.txt**

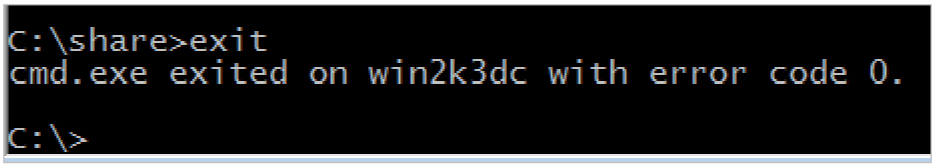


```
C:\>cd share

C:\share>echo hello world > world.txt
```

Figure 29: Creating a file within the Share Folder

The file world.txt is created, containing the phrase "hello world".

10. Exit the PSEXEC session by typing the following command:
    C:\share>**exit**



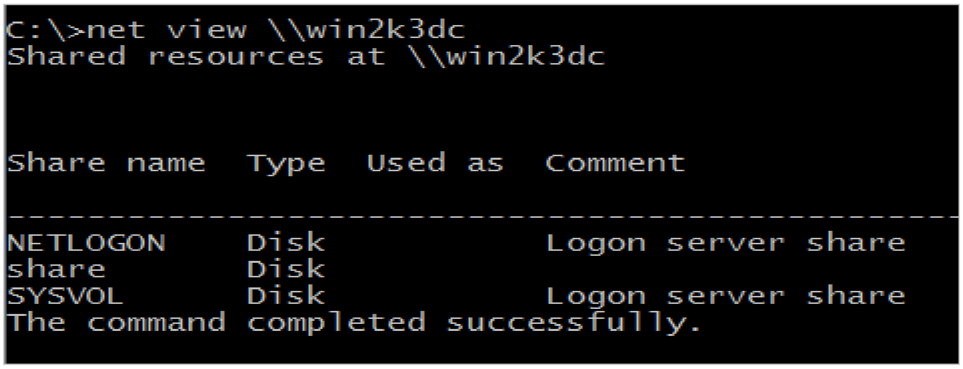
```
C:\share>exit
cmd.exe exited on win2k3dc with error code 0.

C:\>
```

Figure 30: Exiting the PSEXEC cmd.exe Session

An **error code 0** message when using PSEXEC indicates the operation was successful.

Now, you have returned to your **Windows 7 Internal Attack Machine.** The newly created share named ***share*** you created on the remote 2003 machine can be viewed by using net view.

11. In the Windows 7 Internal Attack Machine command prompt, type the following to view the newly created network share on the server:
    C:\>**net view \\\\win2k3dc**

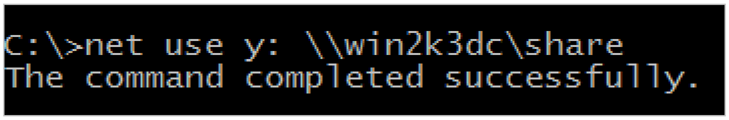


```
C:\>net view \\win2k3dc
Shared resources at \\win2k3dc



Share name  Type  Used as  Comment

-------------------------------------------------------
NETLOGON    Disk           Logon server share
share       Disk
SYSVOL      Disk           Logon server share
The command completed successfully.
```

Figure 31: The Newly Created Share is displayed

Now, we can map a drive to the share and view the resources stored on the share.

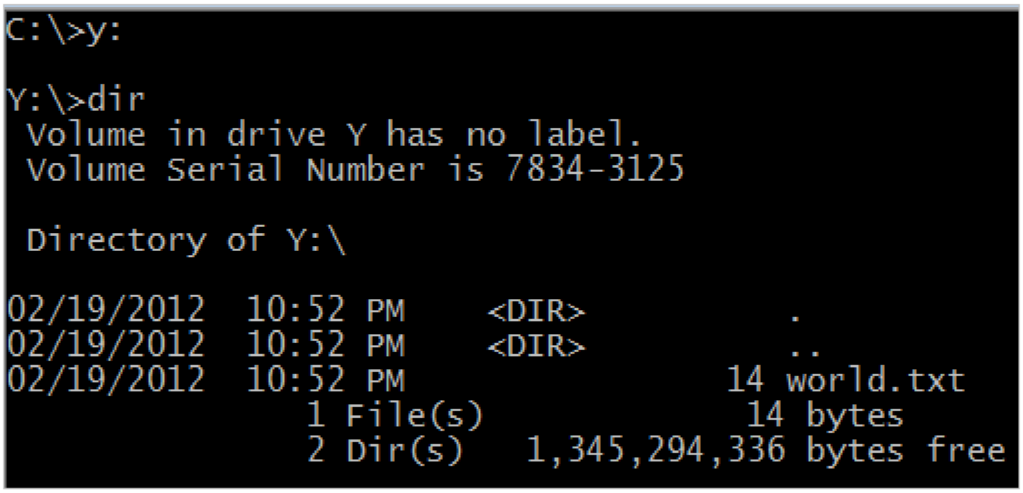
12. Type the following command in the **Windows 7 Internal Attack Machine** to map a drive to the share folder on Windows 2003 Internal Victim Machine Server:
    C:\>**net use y: \\win2k3dc\share**



```
C:\>net use y: \\win2k3dc\share
The command completed successfully.
```

Figure 32: The Drive was Mapped Successfully

13. Type the following commands to access the drive and view the resources:
    C:\>**y:**
    Y:>**dir**

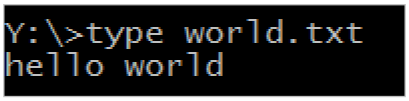


```
C:\>y:

Y:\>dir
 Volume in drive Y has no label.
 Volume Serial Number is 7834-3125

 Directory of Y:\

02/19/2012  10:52 PM    <DIR>          .
02/19/2012  10:52 PM    <DIR>          ..
02/19/2012  10:52 PM                14 world.txt
               1 File(s)             14 bytes
               2 Dir(s)   1,345,294,336 bytes free
```

Figure 33: Viewing the Contents of the Mapped Drive

The **world.txt** file is listed on the mapped drive. You can read the file using the **type** command.

14. Type the following command to view what is written in the **world.txt** file:
    Y:>**type world.txt**

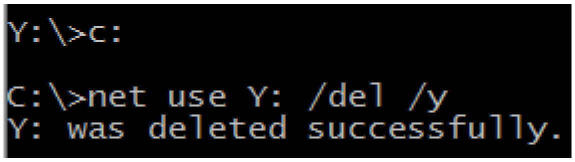


```
Y:\>type world.txt
hello world
```

Figure 34: Viewing the Contents of the Mapped Drive

The phrase “hello world” is within the world.txt file.

15. Type the following commands to remove the mapped drive from your system:
    Y:>**c:**
    C:\>**net use y: /del /y**



```
Y:\>c:

C:\>net use Y: /del /y
Y: was deleted successfully.
```

Figure 35: Removing the Mapped Drive

16. Close the Windows 7 command prompt.

2.2 Conclusion

PSEXEC is a powerful utility that you can use to run commands on remote systems. If you run cmd.exe on the remote system, you will have a command shell connected to the remote machine. After obtaining a remote command shell, you can run commands on the remote machine. With administrative rights, you can perform almost any task.

2.3 Discussion Questions

1. From where do you get the PSEXEC command?
2. Do you need to provide credentials when using PSEXEC?
3. What is the command to share a folder on your C: drive called share?
4. What does an error code of 0 indicate when you are using PSEXEC?

3 Stopping, Starting, and Removing Services

In this section, you will start and stop services on a remote machine from the command line. This can be done by using the sc, which stands for service control, command or using the net command if you are connected to the machine through a remote shell.

3.1 Using the NET and SC Commands

If you can obtain a shell on a remote system using PSEXEC, you can stop and start services from the command line. You can also stop, start, install, and uninstall services by using the sc, or service control command. The sc command, which has been included with the Windows operating system since Windows XP, can be used to run stop, start, install, and uninstall services on a local computer or on a remote machine.

Open a Terminal to Get Started

1. Open a command prompt on the **Windows 7 Internal Attack** machine by double clicking on the cmd-shortcut on the Desktop.

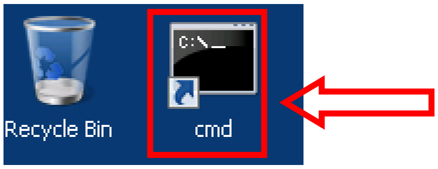
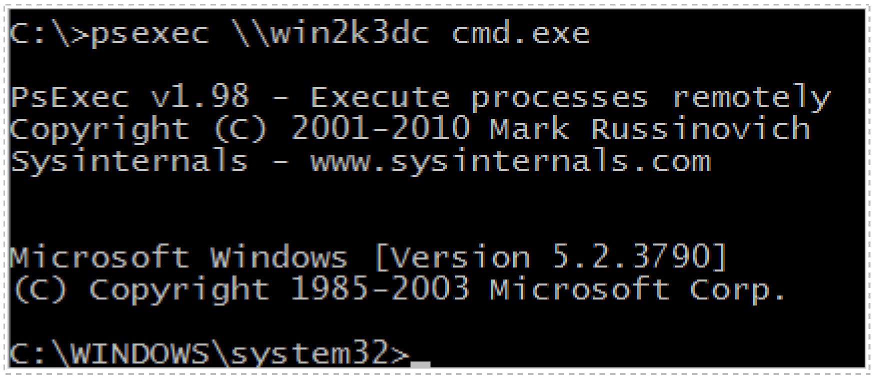


Figure 36: Opening a Command Prompt on Windows 7

2. Type the following to obtain a command shell on the remote 2003 server:
   C:\>**psexec \\win2k3dc cmd.exe**

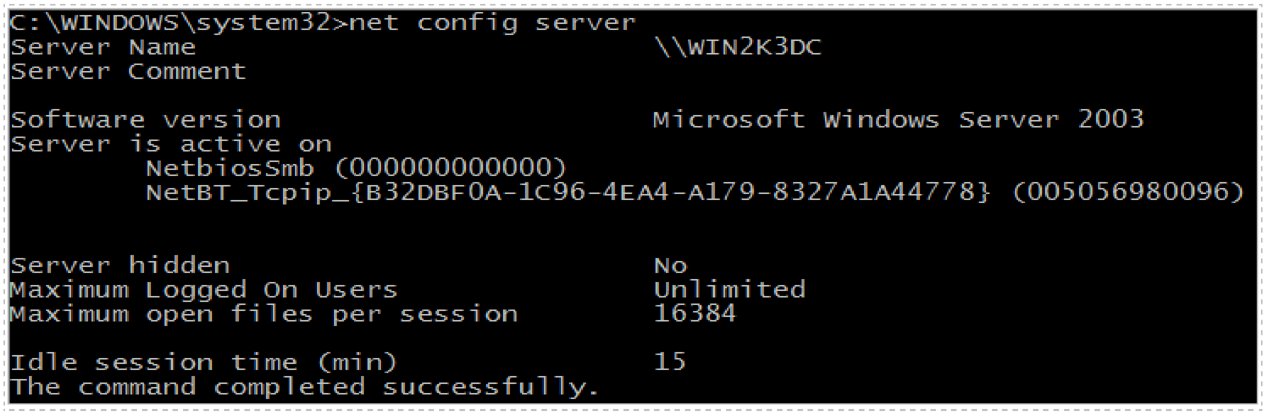
If the IPC$ share is not mapped, refer to Task 1, Step 8 for the procedure to map the share. You can also provide a username and password with the psexec command if you do not wish to map the IPC$ share.



```
C:\>psexec \\win2k3dc cmd.exe

PsExec v1.98 - Execute processes remotely
Copyright (C) 2001-2010 Mark Russinovich
Sysinternals - www.sysinternals.com


Microsoft Windows [Version 5.2.3790]
(C) Copyright 1985-2003 Microsoft Corp.

C:\WINDOWS\system32>_
```

Figure 37: Getting a Remote Shell Using PSEXEC

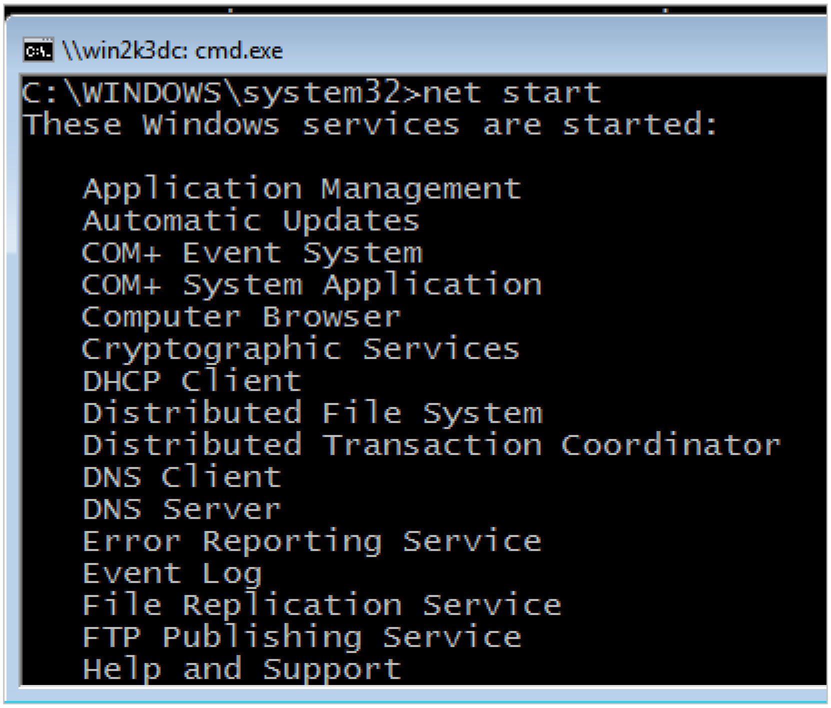
3. Type the following command to verify that you are on the remote machine:
   C:\>**net config server**



```
C:\WINDOWS\system32>net config server
Server Name                          \\WIN2K3DC
Server Comment

Software version                     Microsoft Windows Server 2003
Server is active on
        NetbiosSmb (000000000000)
        NetBT_Tcpip_{B32DBF0A-1C96-4EA4-A179-8327A1A44778} (005056980096)


Server hidden                        No
Maximum Logged On Users              Unlimited
Maximum open files per session       16384

Idle session time (min)              15
The command completed successfully.
```

Figure 38: The net config server command

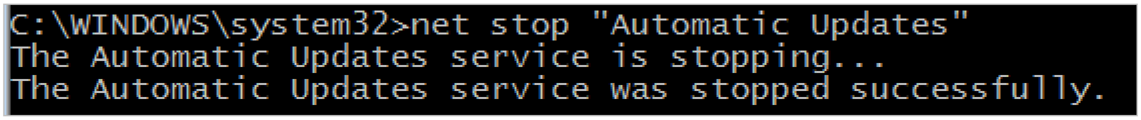
4. Type the following to enumerate the started services on the 2003 server:
   C:\ WINDOWS\system32>**net start**



```
C:\WINDOWS\system32>net start
These Windows services are started:

   Application Management
   Automatic Updates
   COM+ Event System
   COM+ System Application
   Computer Browser
   Cryptographic Services
   DHCP Client
   Distributed File System
   Distributed Transaction Coordinator
   DNS Client
   DNS Server
   Error Reporting Service
   Event Log
   File Replication Service
   FTP Publishing Service
   Help and Support
```

Figure 39: Listing Started Services

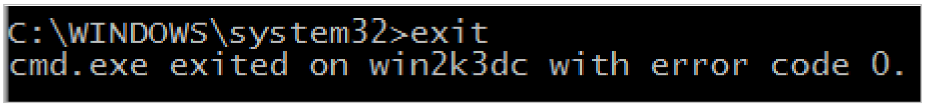
5. Type the following to stop the **Automatic Updates** service on the 2003 server:
   C:\WINDOWS\system32> **net stop "Automatic Updates"**



```
C:\WINDOWS\system32>net stop "Automatic Updates"
The Automatic Updates service is stopping...
The Automatic Updates service was stopped successfully.
```

Figure 40: Stopping the Automatic Updates Service

6. Exit the PSEXEC session by typing the following command:
   C:\ WINDOWS\system32> **exit**



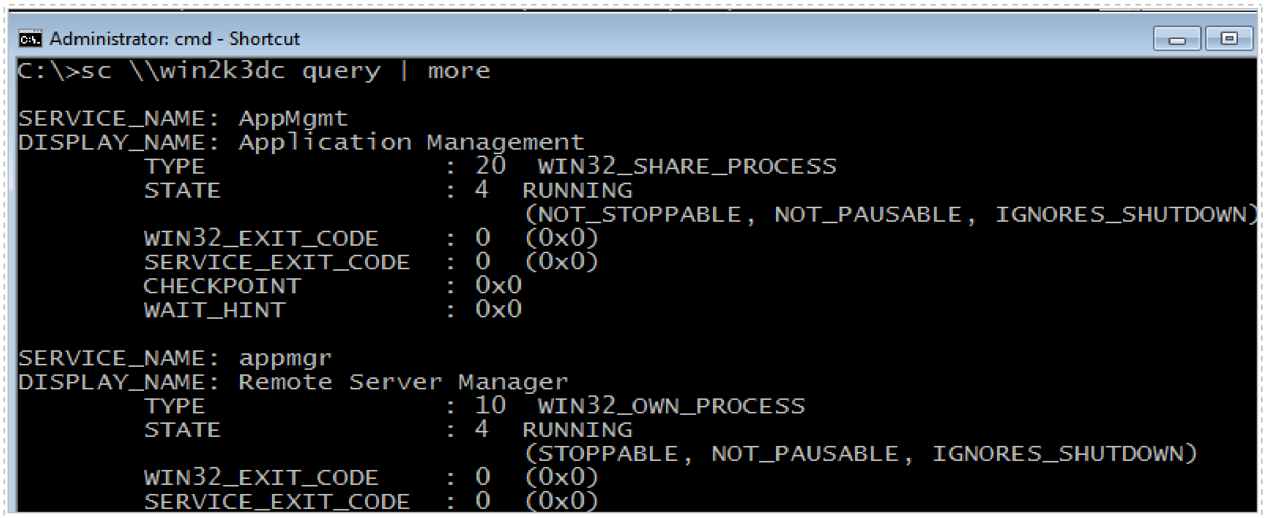
```
C:\WINDOWS\system32>exit
cmd.exe exited on win2k3dc with error code 0.
```

Figure 41: Exiting the PSEXEC cmd.exe Session

An **error code 0** message when using PSEXEC means the operation was successful.

While net start can stop and start services, it cannot install or uninstall them. This is where the sc, or service control command can be very useful. Also, net start and net stop will only work on the machine you are connected to. You cannot specify another system like you can with the service control, or sc, command.

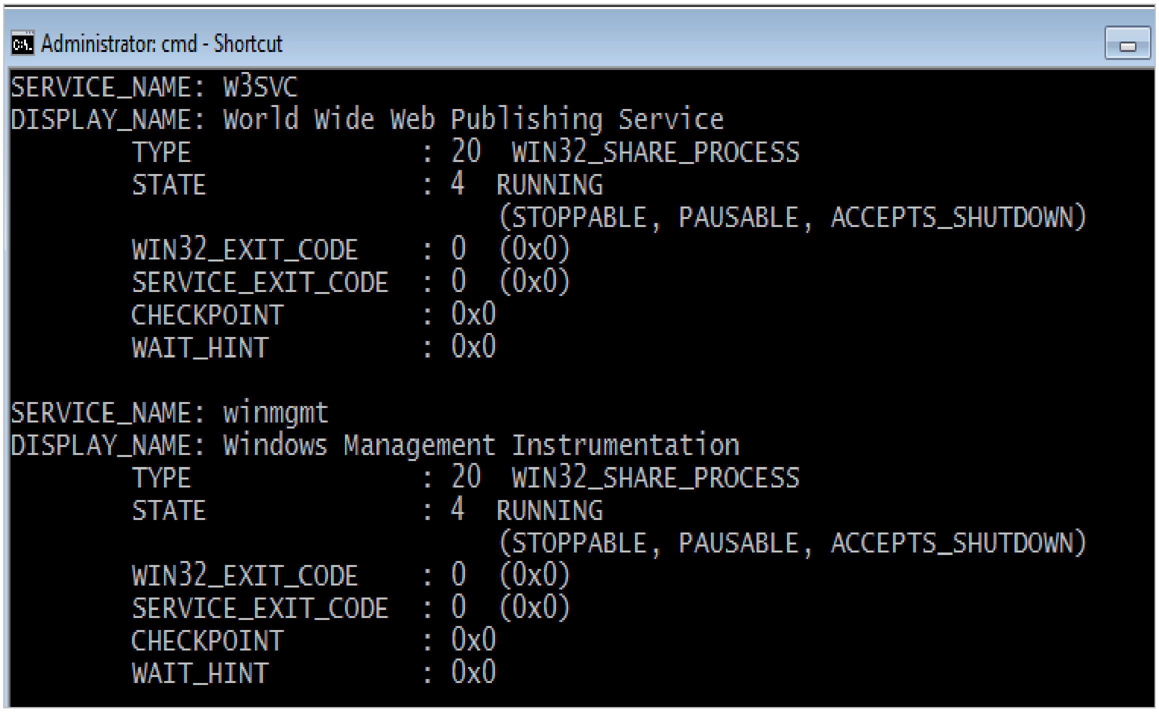
7. Type the following to determine the level of access on the Windows 2003 Server system:
   C:\>**sc \\win2k3dc query | more**



```
C:\>sc \\win2k3dc query | more

SERVICE_NAME: AppMgmt
DISPLAY_NAME: Application Management
        TYPE               : 20  WIN32_SHARE_PROCESS
        STATE              : 4  RUNNING
                                (NOT_STOPPABLE, NOT_PAUSABLE, IGNORES_SHUTDOWN)
        WIN32_EXIT_CODE    : 0  (0x0)
        SERVICE_EXIT_CODE  : 0  (0x0)
        CHECKPOINT         : 0x0
        WAIT_HINT          : 0x0

SERVICE_NAME: appmgr
DISPLAY_NAME: Remote Server Manager
        TYPE               : 10  WIN32_OWN_PROCESS
        STATE              : 4  RUNNING
                                (STOPPABLE, NOT_PAUSABLE, IGNORES_SHUTDOWN)
        WIN32_EXIT_CODE    : 0  (0x0)
        SERVICE_EXIT_CODE  : 0  (0x0)
```

Figure 42: The SC command shows installed services

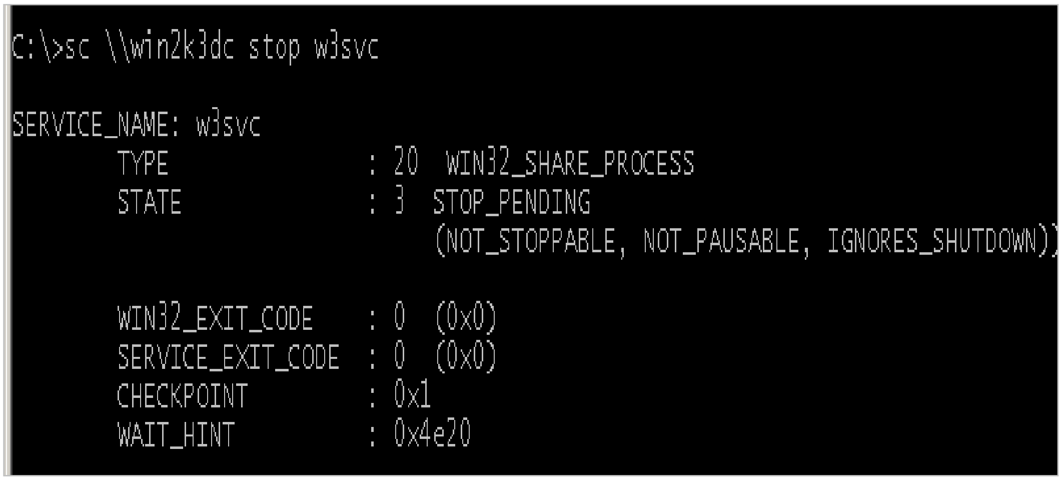
You can page down though the service list one line at a time by hitting enter until you are through the list. Or, hit the space bar to scroll down one page at a time. View the 2 services listed as in the picture below (they are located towards the end of the list):



```
SERVICE_NAME: W3SVC
DISPLAY_NAME: World Wide Web Publishing Service
        TYPE               : 20  WIN32_SHARE_PROCESS
        STATE              : 4  RUNNING
                                (STOPPABLE, PAUSABLE, ACCEPTS_SHUTDOWN)
        WIN32_EXIT_CODE    : 0  (0x0)
        SERVICE_EXIT_CODE  : 0  (0x0)
        CHECKPOINT         : 0x0
        WAIT_HINT          : 0x0

SERVICE_NAME: winmgmt
DISPLAY_NAME: Windows Management Instrumentation
        TYPE               : 20  WIN32_SHARE_PROCESS
        STATE              : 4  RUNNING
                                (STOPPABLE, PAUSABLE, ACCEPTS_SHUTDOWN)
        WIN32_EXIT_CODE    : 0  (0x0)
        SERVICE_EXIT_CODE  : 0  (0x0)
        CHECKPOINT         : 0x0
        WAIT_HINT          : 0x0
```

Figure 43: The W3SVC and WINMGMT services

8. Type the following to stop the World Wide Web Service on the remote server: C:\>**sc \\win2k3dc stop w3svc**

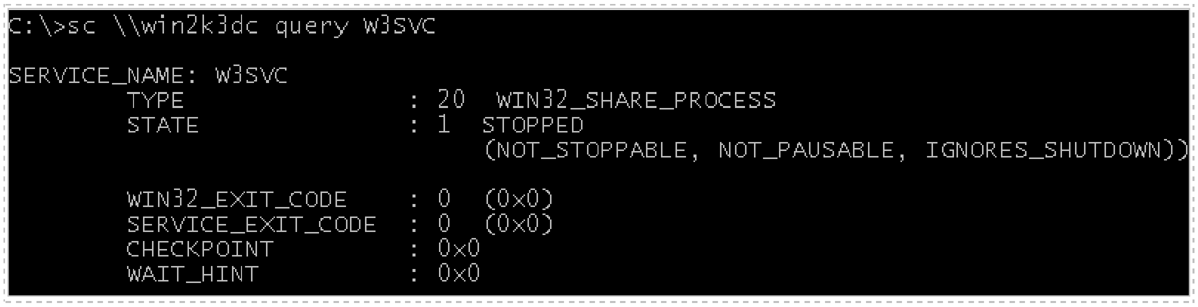


```
C:\>sc \\win2k3dc stop w3svc

SERVICE_NAME: w3svc
        TYPE               : 20  WIN32_SHARE_PROCESS
        STATE              : 3  STOP_PENDING
                                (NOT_STOPPABLE, NOT_PAUSABLE, IGNORES_SHUTDOWN))

        WIN32_EXIT_CODE    : 0  (0x0)
        SERVICE_EXIT_CODE  : 0  (0x0)
        CHECKPOINT         : 0x1
        WAIT_HINT          : 0x4e20
```

Figure 44: Stopping the World Wide Web Service

The state of the service is **stop pending**. You can also use sc to verify that the service is stopped

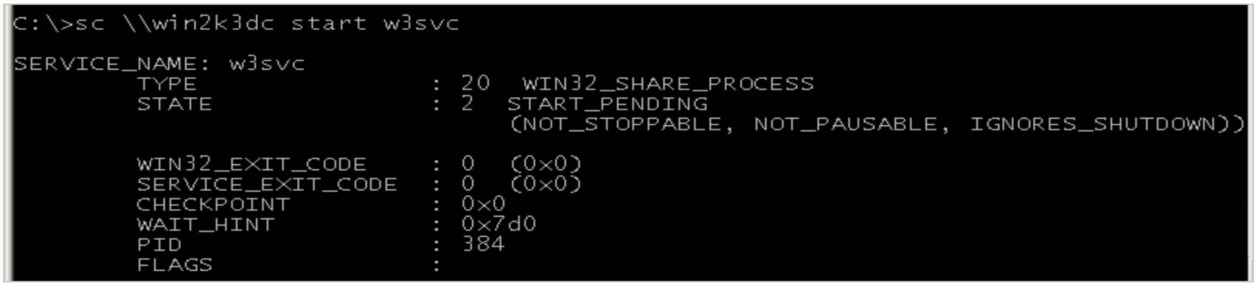
9. Type the following to view the World Wide Web Service status on the server:
   C:\>**sc \\win2k3dc query w3svc**



```
C:\>sc \\win2k3dc query W3SVC

SERVICE_NAME: W3SVC
        TYPE               : 20  WIN32_SHARE_PROCESS
        STATE              : 1  STOPPED
                                (NOT_STOPPABLE, NOT_PAUSABLE, IGNORES_SHUTDOWN))

        WIN32_EXIT_CODE    : 0   (0x0)
        SERVICE_EXIT_CODE  : 0   (0x0)
        CHECKPOINT         : 0x0
        WAIT_HINT          : 0x0
```

Figure 45: A Query of the W3SCV Service indicates it is Stopped

10. Type the following to start the World Wide Web Service on the remote server:
    C:\>**sc \\win2k3dc start w3svc**

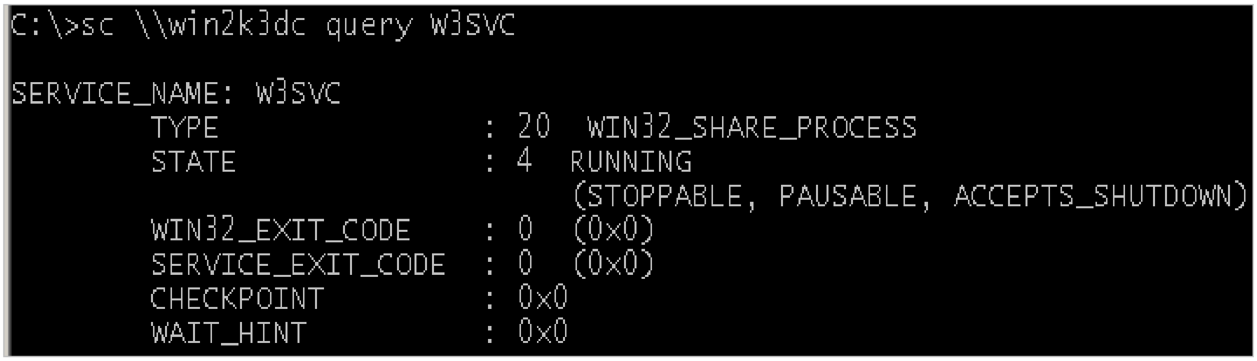


```
C:\>sc \\win2k3dc start w3svc

SERVICE_NAME: w3svc
        TYPE               : 20  WIN32_SHARE_PROCESS
        STATE              : 2  START_PENDING
                                (NOT_STOPPABLE, NOT_PAUSABLE, IGNORES_SHUTDOWN))

        WIN32_EXIT_CODE    : 0   (0x0)
        SERVICE_EXIT_CODE  : 0   (0x0)
        CHECKPOINT         : 0x0
        WAIT_HINT          : 0x7d0
        PID                : 384
        FLAGS              :
```

Figure 46: Indication that the W3SVC Service is starting

It says **start pending**. You can also use sc to verify that the service is running.

11. Type the following to view the World Wide Web Service status on the server:
    C:\>**sc \\win2k3dc query w3svc**



```
C:\>sc \\win2k3dc query W3SVC

SERVICE_NAME: W3SVC
        TYPE               : 20  WIN32_SHARE_PROCESS
        STATE              : 4  RUNNING
                                (STOPPABLE, PAUSABLE, ACCEPTS_SHUTDOWN)
        WIN32_EXIT_CODE    : 0   (0x0)
        SERVICE_EXIT_CODE  : 0   (0x0)
        CHECKPOINT         : 0x0
        WAIT_HINT          : 0x0
```

Figure 47: A Query of the W3SCV Service indicates it is Running

12. Close the command prompt when finished.

3.2 Conclusion

With the **sc** and **net** command, services can be stopped and started from the command line. The **net** command only allows you to stop and start services on a local machine. However, you can use **PSEXEC** to obtain a command prompt on a remote system, then use **net stop** and **net start** on that system. The **sc**, or service control, command works on remote systems and allows you to stop, start, install, and uninstall services.

3.3 Discussion Questions

1. What is the net command to stop the Windows Update Service?
2. What is the sc command to get the list of services on a remote machine
3. What is the sc command to stop the W3SVC service on a remote system?
4. What is the sc command to start the W3SVC service on a remote system?

References

1. PSEXEC:
   http://technet.microsoft.com/en-us/sysinternals/bb897553

2. NET Command:
   http://www.computerhope.com/nethlp.htm

3. SC Command:
   http://technet.microsoft.com/en-us/library/bb490995.aspx

4. Mapping Drives:
   http://support.microsoft.com/kb/308582

5. Hidden Shares:
   http://support.microsoft.com/kb/314984