Secure Coding (CSE 2010)

LAB Experiment: 13

Done by,

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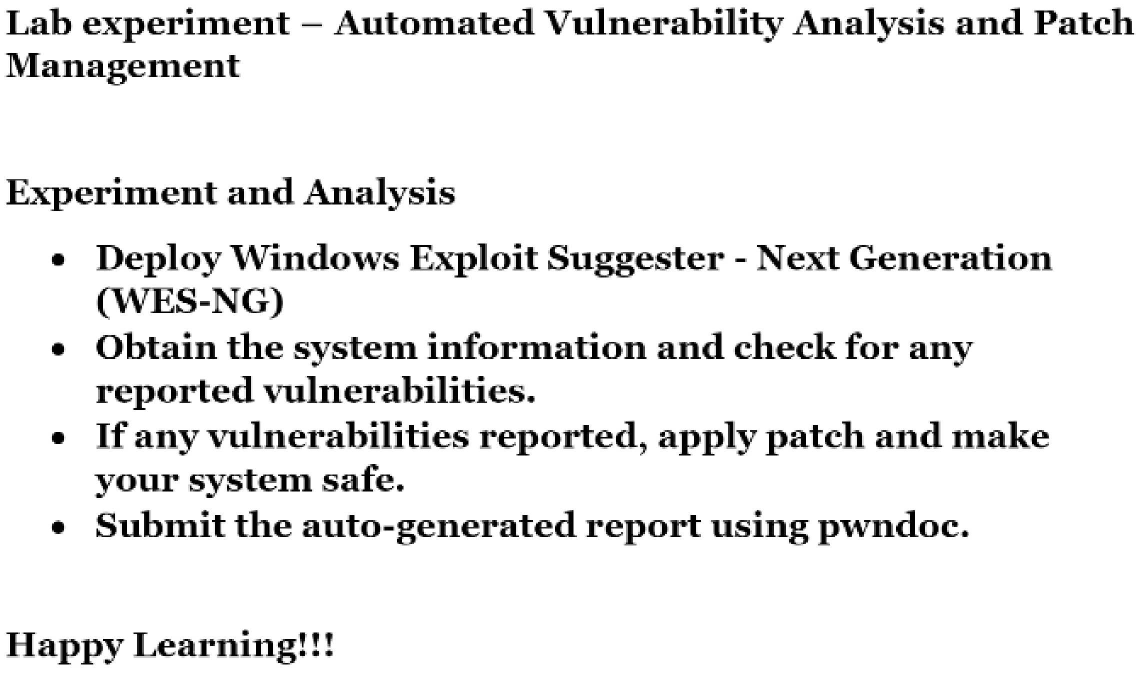
SLOT: L23+L24

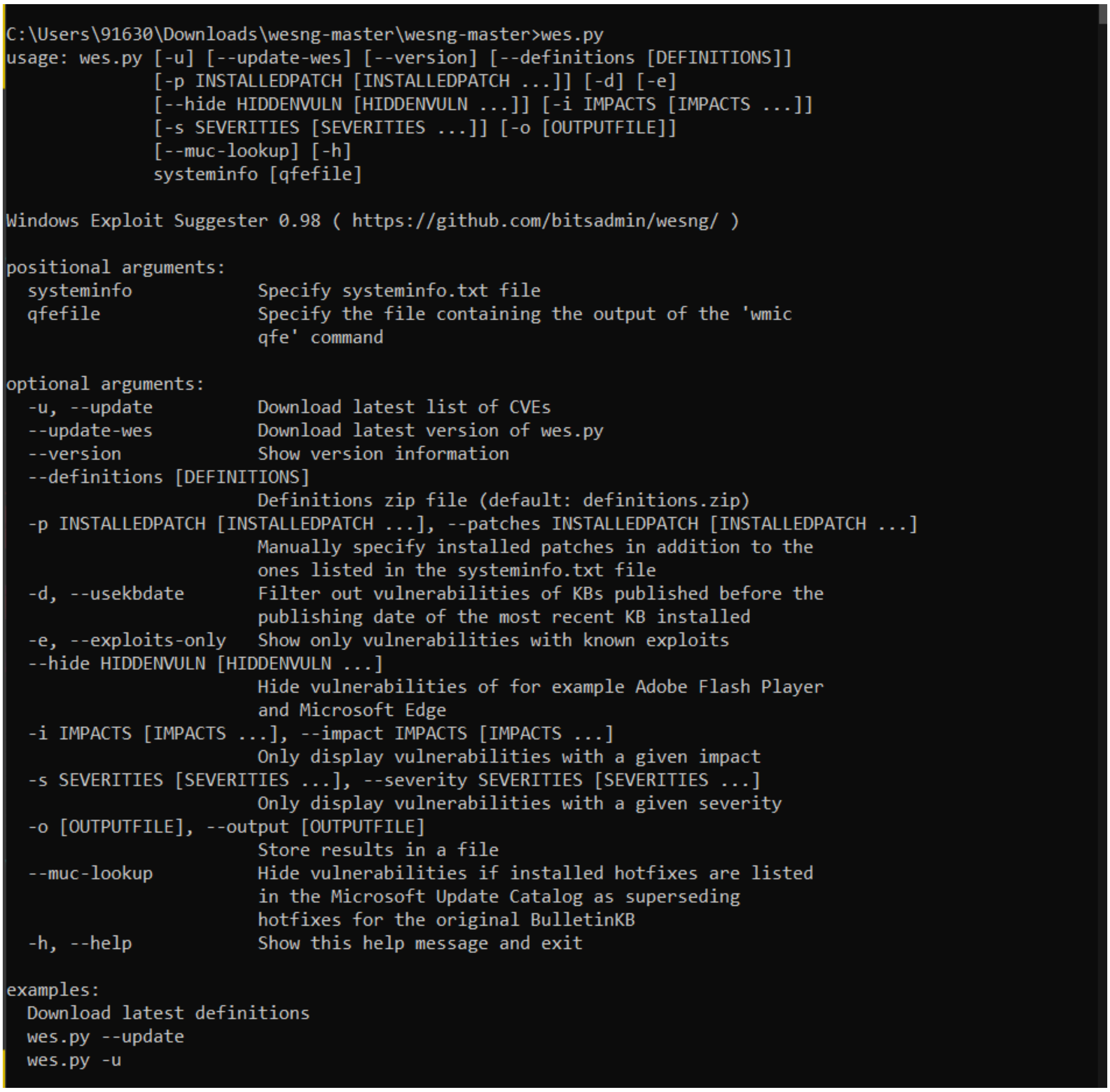


Lab experiment – Automated Vulnerability Analysis and Patch Management

Experiment and Analysis

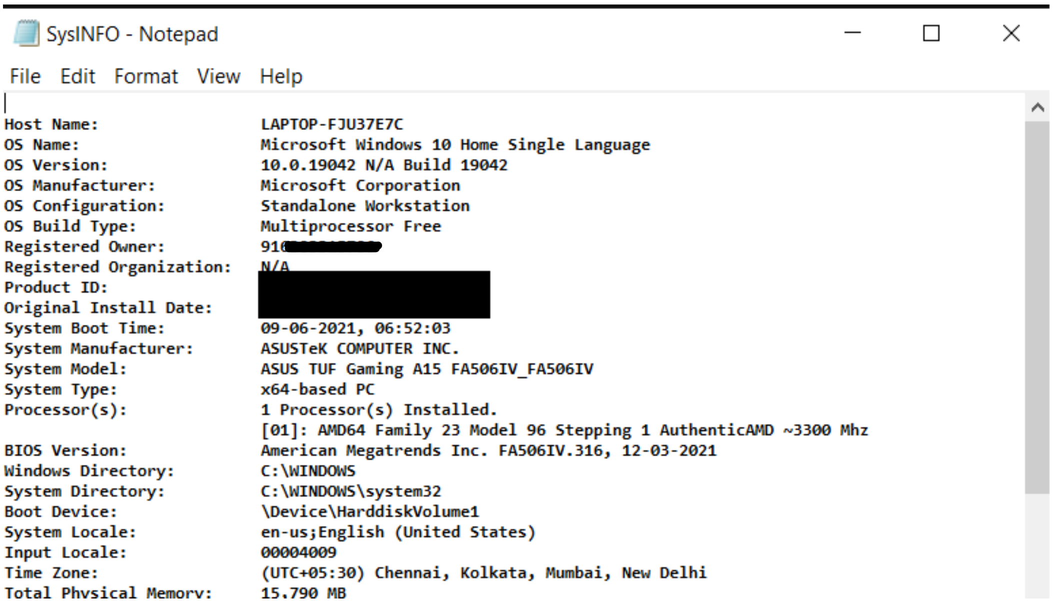
- **Deploy Windows Exploit Suggester - Next Generation (WES-NG)**
- **Obtain the system information and check for any reported vulnerabilities.**
- **If any vulnerabilities reported, apply patch and make your system safe.**
- **Submit the auto-generated report using pwndoc.**

Happy Learning!!!



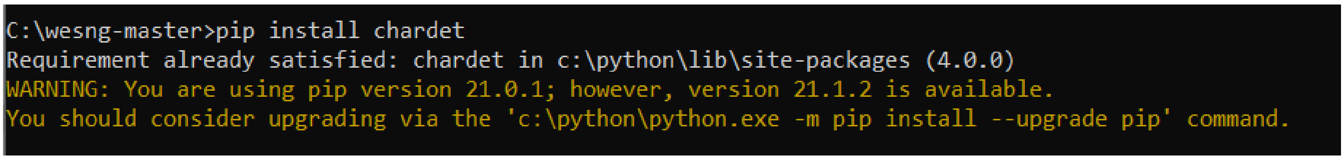
```
C:\Users\91630\Downloads\wesng-master\wesng-master>wes.py
usage: wes.py [-u] [--update-wes] [--version] [--definitions [DEFINITIONS]]
              [-p INSTALLEDPATCH [INSTALLEDPATCH ...]] [-d] [-e]
              [--hide HIDDENVULN [HIDDENVULN ...]] [-i IMPACTS [IMPACTS ...]]
              [-s SEVERITIES [SEVERITIES ...]] [-o [OUTPUTFILE]]
              [--muc-lookup] [-h]
              systeminfo [qfefile]

Windows Exploit Suggester 0.98 ( https://github.com/bitsadmin/wesng/ )

positional arguments:
  systeminfo            Specify systeminfo.txt file
  qfefile               Specify the file containing the output of the 'wmic
                        qfe' command

optional arguments:
  -u, --update          Download latest list of CVEs
  --update-wes          Download latest version of wes.py
  --version             Show version information
  --definitions [DEFINITIONS]
                        Definitions zip file (default: definitions.zip)
  -p INSTALLEDPATCH [INSTALLEDPATCH ...], --patches INSTALLEDPATCH [INSTALLEDPATCH ...]
                        Manually specify installed patches in addition to the
                        ones listed in the systeminfo.txt file
  -d, --usekbdate       Filter out vulnerabilities of KBs published before the
                        publishing date of the most recent KB installed
  -e, --exploits-only   Show only vulnerabilities with known exploits
  --hide HIDDENVULN [HIDDENVULN ...]
                        Hide vulnerabilities of for example Adobe Flash Player
                        and Microsoft Edge
  -i IMPACTS [IMPACTS ...], --impact IMPACTS [IMPACTS ...]
                        Only display vulnerabilities with a given impact
  -s SEVERITIES [SEVERITIES ...], --severity SEVERITIES [SEVERITIES ...]
                        Only display vulnerabilities with a given severity
  -o [OUTPUTFILE], --output [OUTPUTFILE]
                        Store results in a file
  --muc-lookup          Hide vulnerabilities if installed hotfixes are listed
                        in the Microsoft Update Catalog as superseding
                        hotfixes for the original BulletinKB
  -h, --help            Show this message and exit

examples:
  Download latest definitions
  wes.py --update
  wes.py -u
```

1. Generating system info into a text file.



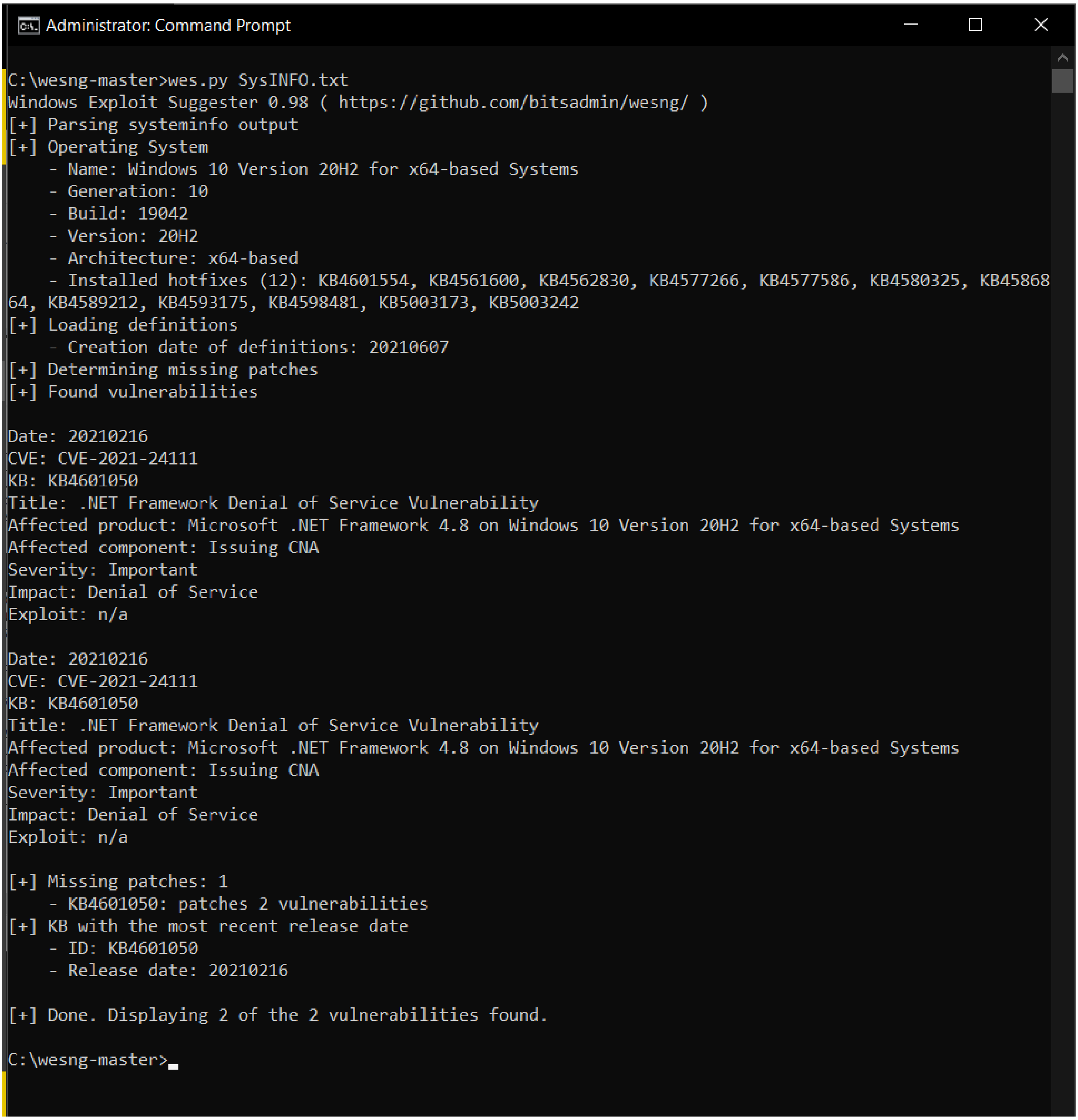
```
Host Name:                 LAPTOP-FJU37E7C
OS Name:                   Microsoft Windows 10 Home Single Language
OS Version:                10.0.19042 N/A Build 19042
OS Manufacturer:           Microsoft Corporation
OS Configuration:          Standalone Workstation
OS Build Type:             Multiprocessor Free
Registered Owner:          916[redacted]
Registered Organization:   N/A
Product ID:                [redacted]
Original Install Date:
System Boot Time:          09-06-2021, 06:52:03
System Manufacturer:       ASUSTeK COMPUTER INC.
System Model:              ASUS TUF Gaming A15 FA506IV_FA506IV
System Type:               x64-based PC
Processor(s):              1 Processor(s) Installed.
                           [01]: AMD64 Family 23 Model 96 Stepping 1 AuthenticAMD ~3300 Mhz
BIOS Version:              American Megatrends Inc. FA506IV.316, 12-03-2021
Windows Directory:         C:\WINDOWS
System Directory:          C:\WINDOWS\system32
Boot Device:               \Device\HarddiskVolume1
System Locale:             en-us;English (United States)
Input Locale:              00004009
Time Zone:                 (UTC+05:30) Chennai, Kolkata, Mumbai, New Delhi
Total Physical Memory:     15.790 MB
```

2. Updating WES-NG with latest packages.



```
C:\wesng-master>pip install chardet
Requirement already satisfied: chardet in c:\python\lib\site-packages (4.0.0)
WARNING: You are using pip version 21.0.1; however, version 21.1.2 is available.
You should consider upgrading via the 'c:\python\python.exe -m pip install --upgrade pip' command.
```

3. Checking for vulnerabilities:



```
C:\wesng-master>wes.py SysINFO.txt
Windows Exploit Suggester 0.98 ( https://github.com/bitsadmin/wesng/ )
[+] Parsing systeminfo output
[+] Operating System
    - Name: Windows 10 Version 20H2 for x64-based Systems
    - Generation: 10
    - Build: 19042
    - Version: 20H2
    - Architecture: x64-based
    - Installed hotfixes (12): KB4601554, KB4561600, KB4562830, KB4577266, KB4577586, KB4580325, KB45868
64, KB4589212, KB4593175, KB4598481, KB5003173, KB5003242
[+] Loading definitions
    - Creation date of definitions: 20210607
[+] Determining missing patches
[+] Found vulnerabilities

Date: 20210216
CVE: CVE-2021-24111
KB: KB4601050
Title: .NET Framework Denial of Service Vulnerability
Affected product: Microsoft .NET Framework 4.8 on Windows 10 Version 20H2 for x64-based Systems
Affected component: Issuing CNA
Severity: Important
Impact: Denial of Service
Exploit: n/a

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Severity: Important
Impact: Denial of Service
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[+] Missing patches: 1
    - KB4601050: patches 2 vulnerabilities
[+] KB with the most recent release date
    - ID: KB4601050
    - Release date: 20210216

[+] Done. Displaying 2 of the 2 vulnerabilities found.

C:\wesng-master>_
```
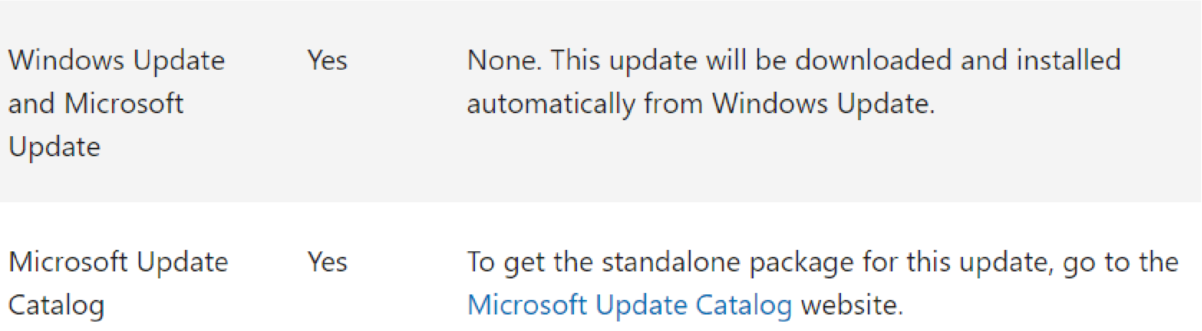
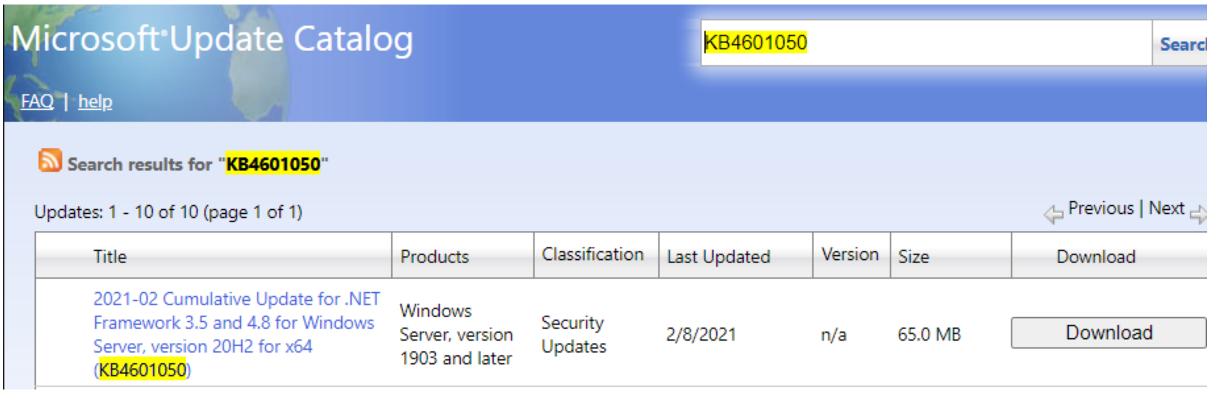

4. The vulnerabilities can be addressed by installing patches for the hotfix: KB4601050 from Microsoft update catlog:
According to Microsoft support:



Windows Update and Microsoft Update	Yes	None. This update will be downloaded and installed automatically from Windows Update.
Microsoft Update Catalog	Yes	To get the standalone package for this update, go to the Microsoft Update Catalog website.

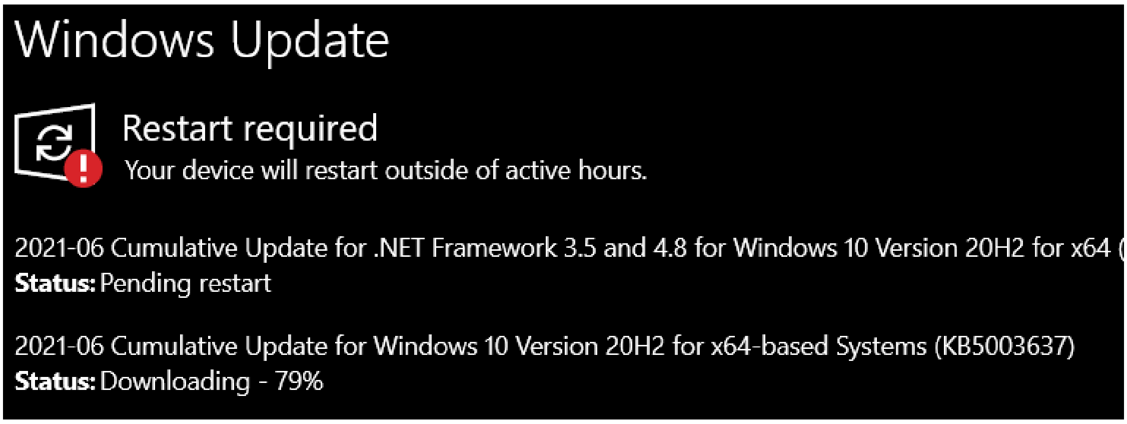
Standalone package from MS update catlog:



Search results for "KB4601050"

Updates: 1 - 10 of 10 (page 1 of 1)

Title	Products	Classification	Last Updated	Version	Size	Download
2021-02 Cumulative Update for .NET Framework 3.5 and 4.8 for Windows Server, version 20H2 for x64 (KB4601050)	Windows Server, version 1903 and later	Security Updates	2/8/2021	n/a	65.0 MB	Download



Windows Update

Restart required
Your device will restart outside of active hours.

2021-06 Cumulative Update for .NET Framework 3.5 and 4.8 for Windows 10 Version 20H2 for x64 (
Status: Pending restart

2021-06 Cumulative Update for Windows 10 Version 20H2 for x64-based Systems (KB5003637)
Status: Downloading - 79%

- Here the standalone package was available, yet the patch was install directly via Windows Update, along with a few other patches which were not displayed in the system info txt file.