RAPID7

Automated PenTest Toolkit

Adam Compton, Senior Security Consultant

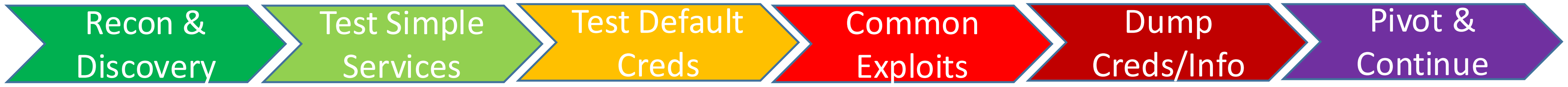
Who Am I?

- Adam in 5 words:

Father	*6 years*
Pentester	*15+ years*
Husband	*16+ years*
Programmer	*20+ years*
Hillbilly	*40+ years*

Overview

- Penetration testing often begins with a simple routine.



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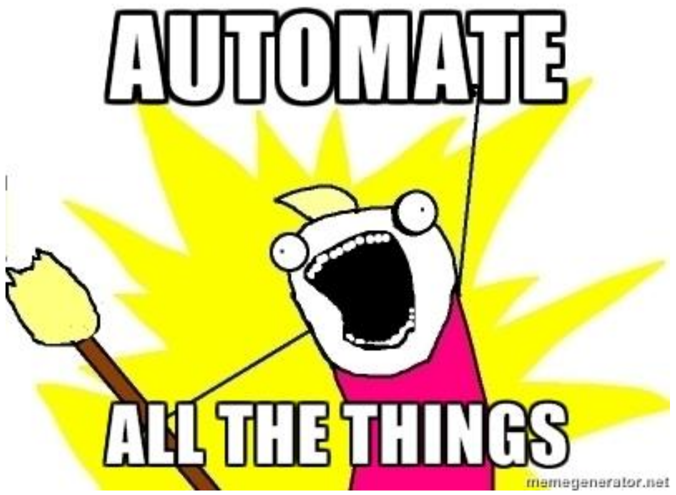

```
#!/bin/bash
```

Ruby

python

Perl

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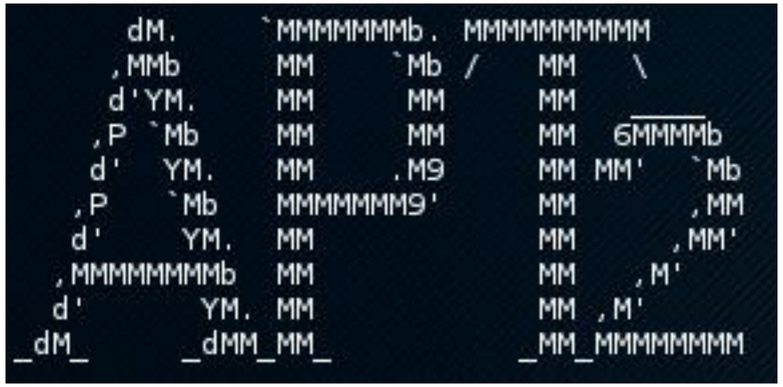
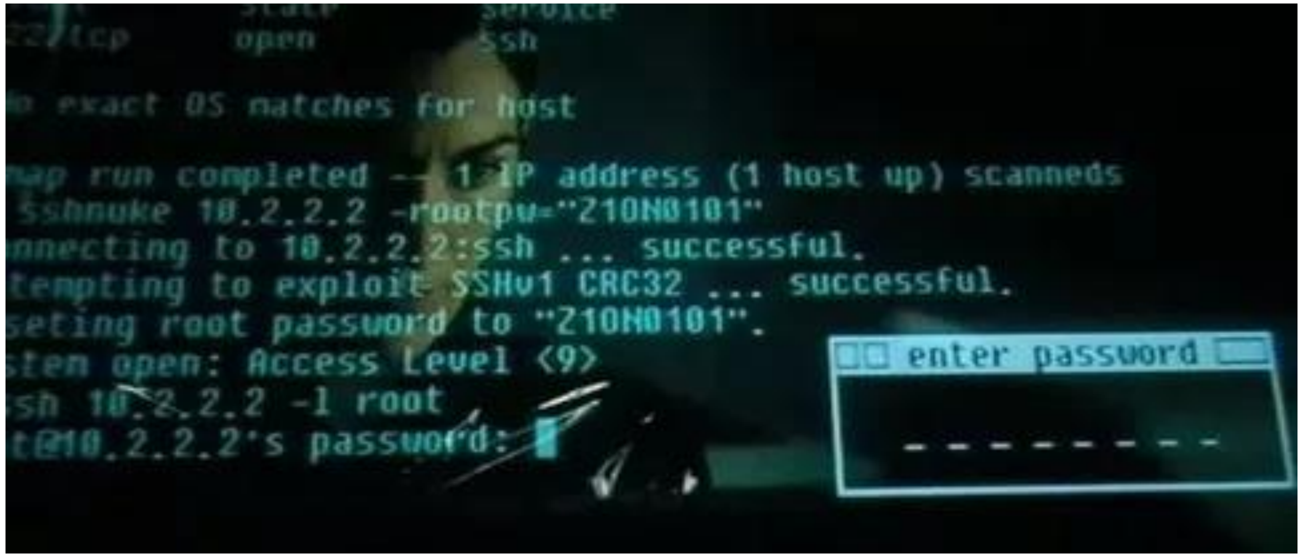
- This routine can be slow on large networks.
- Much of this routine can be automated.
- So we wrote a tool to help with the automation.



```
        dM.      `MMMMMMMb. MMMMMMMMMM
       ,MMb      MM    `Mb /   MM   \
       d'YM.     MM     MM     MM    _____
      ,P `Mb     MM     MM     MM   6MMMMb
      d'  YM.    MM    .M9     MM  MM'  `Mb
     ,P   `Mb    MMMMMMM9'     MM       ,MM
     d'    YM.   MM            MM      ,MM'
    ,MMMMMMMMb   MM            MM    ,M'
    d'      YM.  MM            MM  ,M'
  _dM_     _dMM_MM_           _MM_MMMMMMMM
```

Typical Pentest Routine

- Run Nmap *(or port scanner of choice)*



```
          State       Service
22/tcp    open        ssh

o exact OS matches for host

map run completed -- 1 IP address (1 host up) scanneds
 sshnuke 10.2.2.2 -rootpw="Z10N0101"
nnecting to 10.2.2.2:ssh ... successful.
tempting to exploit SSHv1 CRC32 ... successful.
seting root password to "Z10N0101".
stem open: Access Level <9>
sh 10.2.2.2 -l root
t@10.2.2.2's password:
```

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- Run Nmap *(or port scanner of choice)*
- Review ports and services
  - Port 21 -> test for anonymous FTP
  - Port 80 -> identify web service and check for flaws/default creds
  - Port 445 -> enum users/shares, ms08-067?, …
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- Run Responder / Metasploit / CrackMapExec / …
- …
- Take over the DC/database/etc..

If it is not broken…

- Repeatability
- Consistency
- Can be tedious and slow
- Manually parsing through data can be prone to error

- Automation can help

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CONS

- Can be fairly resource intensive
- Can be expensive
- How easy to add a new check/tool?

Automation via Scripting

- Kali already has LOTS of popular tools and scripts

- Automation methods:
  - Bash
  - Python (or scripting language of choice)
  - Metasploit RPC

APT2 – Automate the standard stuff

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  - Modules
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- Modules can create new events
- Runs until event queue is empty

How Does This Help?

- Multi-threaded event queue is **fast.**
- **Simple to create** new modules for nearly any tool/script.
- Ready to go:
  - Get Kali (or your favorite distro & tools)
  - Clone the repo

So, What Can It Do?

- Identify services & operating systems
- Screenshot web applications, X11, VNC, …
- Analyze FTP and file shares
- Brute force accounts
- Run Metasploit modules
- Compile hashes -> John the Ripper/HashCat

- "ls /usr/share" – If it is listed here, a module can probably be made for it

Anatomy of a Module

- Inherit from base module (typically ActionModule)
- Has standard properties:
  - Name
  - Description
  - Requirements – Which tools need to be installed?
  - Trigger – Which event does this module listen for?
  - Safety Level – Scale of 1 – 5 (5 = safe, 1 = dangerous)
- ”process()” is the primary method

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- Nonstandard ports and service names may throw off modules

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- APT2 – ~1 second per server, done in 40* seconds
  - **Assuming ideal conditions*

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- APT2 removes the baseline time

Demo Time

Development

- Open source – Available on the Rapid7 Github account at https://www.github.com/MooseDojo/apt2

- Future plans
  - Import from more than just NMAP
  - Responder -> John the Ripper -> secretsdump.py *(**partially there now**)*
  - Lots more modules
  - Python 3 ?
  - Pretty Reports
  - ?

411 & Questions

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  - adam.compton@gmail.com

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- QUESTIONS???