Phishing: Going from Recon to Creds

Hackcon 2016 Edition
Adam Compton

HackCon
The Norwegian cyber security conference

Agenda

- Talk a Little About Myself
- What is Phishing?
- A Standard Phishing Process
- Speed Phishing Demo

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Husband -16 yrs
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Programmer - 34 yrs
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What is Phishing?

"the attempt to acquire sensitive information...by masquerading as a trustworthy entity in an electronic communication." - Wikipedia (Phishing)

AUTOMATIC DOOR
KEEP MOVING
WHAT IS "PHISHING?"
Phishing is an attempt to steal financial or other confidential information from internet users.
UTOMATIC SLIDING DOOR

Why Phish?

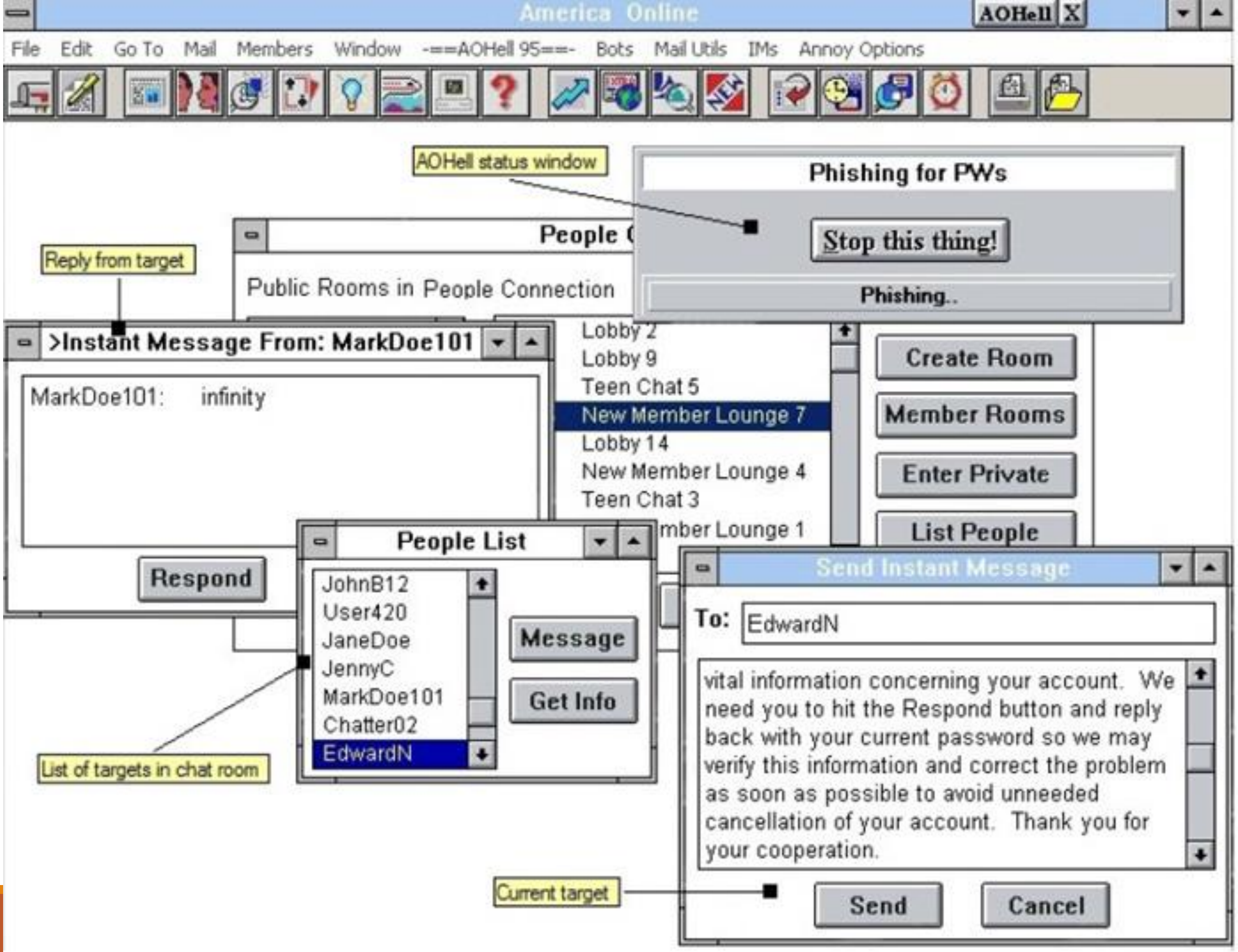
Potential high return on investment

May be easiest way on a network

It works! People want to be helpful.

Going Back to the 90s

“AOHell includes a "fisher" that allows a user to pose as an AOL official and ask new members for passwords or credit-card numbers.” - San Jose Mercury 1995



AOHell status window

Reply from target

List of targets in chat room

Current target

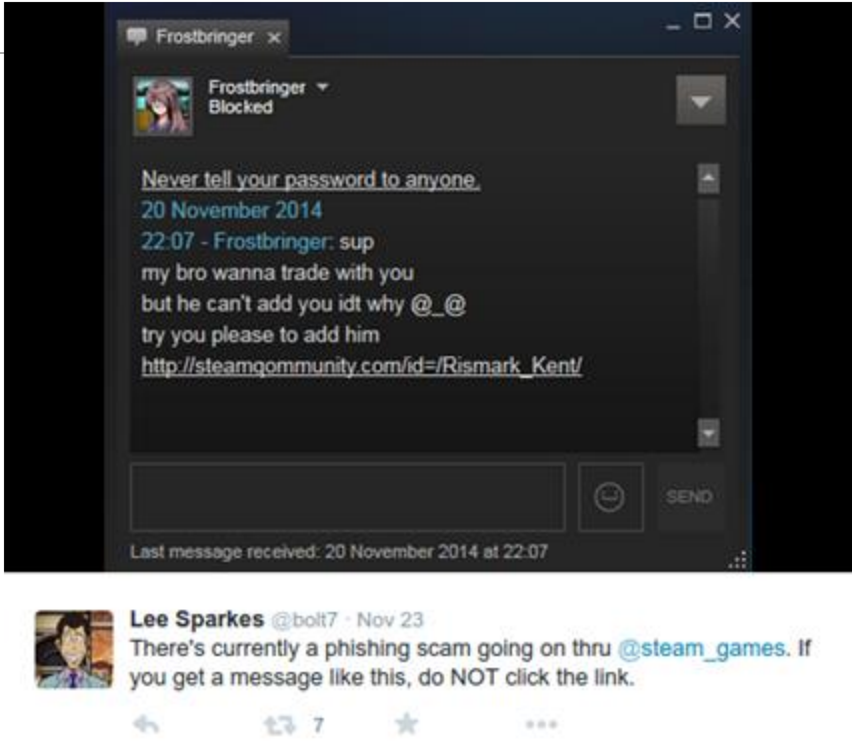
MarkDoe101: infinity

To: EdwardN

vital information concerning your account. We need you to hit the Respond button and reply back with your current password so we may verify this information and correct the problem as soon as possible to avoid unneeded cancellation of your account. Thank you for your cooperation.

What kind of sensitive info?

Credentials
Credit Cards
Identity - PII
Health Information
Bitcoin Wallets
Steam Accounts



Never tell your password to anyone.
20 November 2014
22:07 - Frostbringer: sup
my bro wanna trade with you
but he can't add you idt why @_@
try you please to add him
http://steamqommunity.com/id=/Rismark_Kent/

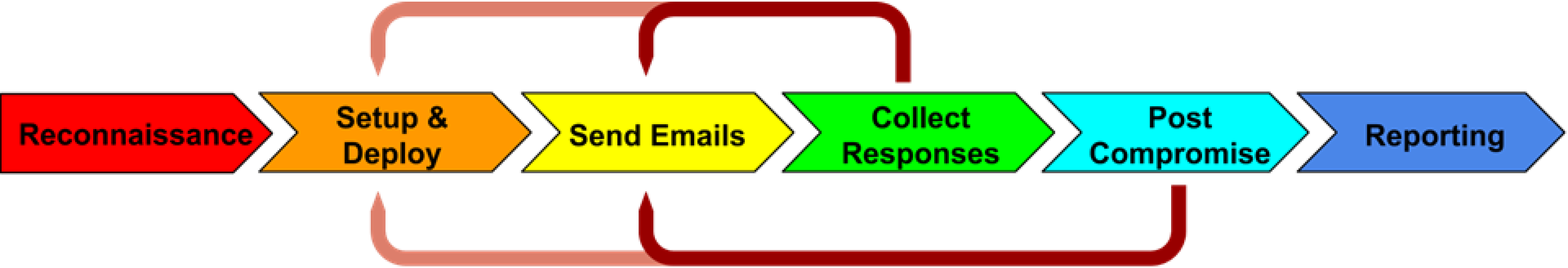
Last message received: 20 November 2014 at 22:07

Lee Sparkes @bolt7 · Nov 23
There's currently a phishing scam going on thru @steam_games. If you get a message like this, do NOT click the link.

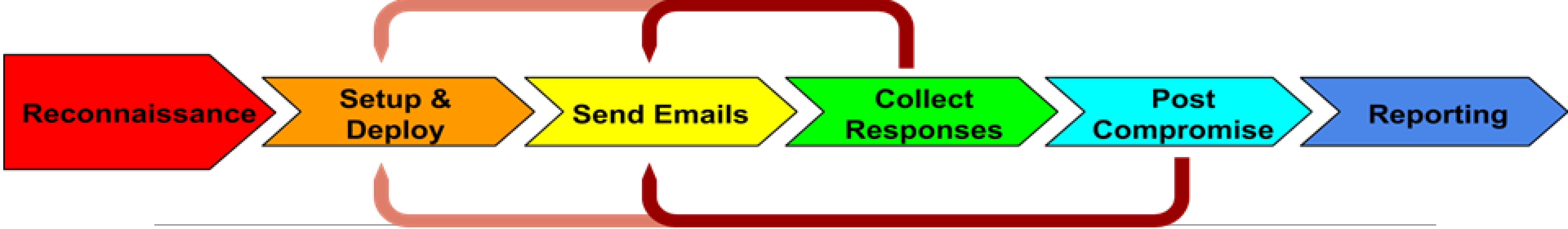
Types of Phishing Attacks

Attack	**Magnitude**	**Targeting**
Phishing	Many	General
Spear Phishing	10s - 100s	Group, Company
Whaling	One	Executive

Standard Phishing Process



https://github.com/tatanus/SPF

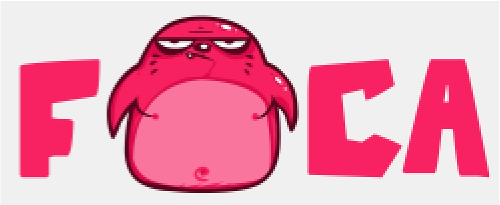


The list of targets and any other info that will help

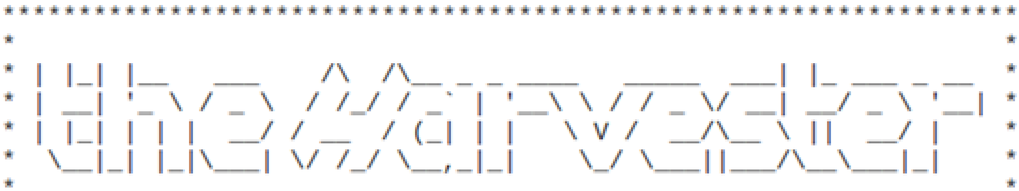
Find through company site, google searches, and even social media

List may be provided by customer

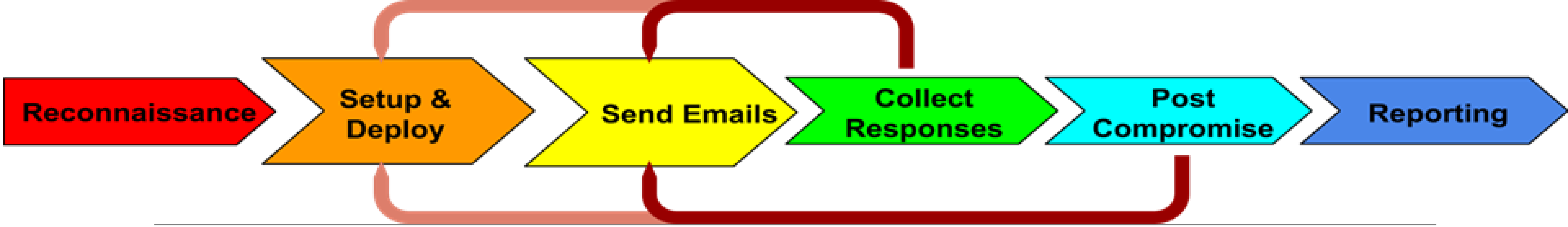
Recon Tools



```
$ python recon-ng.py

[recon-ng v1.00 Copyright (C) 2013, Tim Tomes (@LaNMaSteR53)]
```



https://github.com/tatanus/SPF

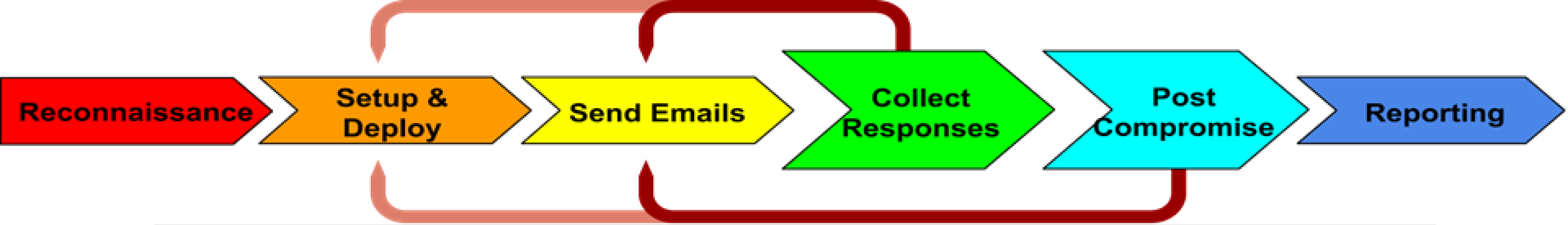


Setting up web, dns and/or mail servers

Create a convincing scenario, write the email

Test the entire process!

This may be your only chance to fix issues



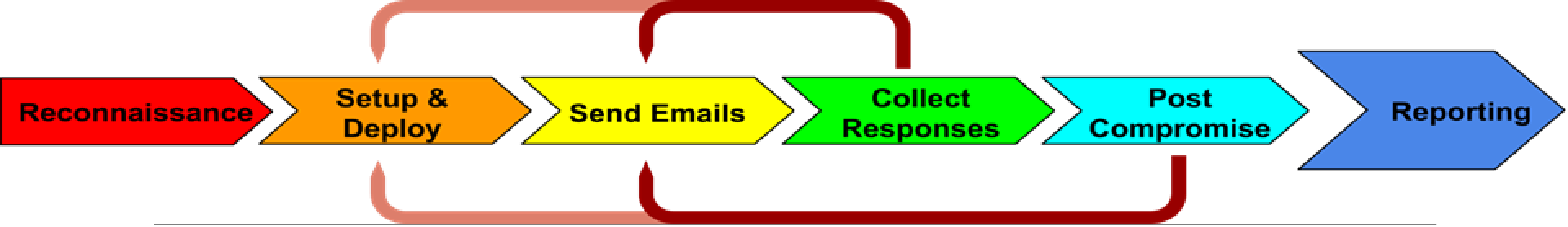
Credential Harvesting => Login Information

Exploiting Client => Metasploit Sessions

This step is based on scope of work

Attack Tools - Setup to Post Compromise

https://github.com/tatanus/SPF



Everyone’s Favorite Part!

At Minimum:

- Describe the Attack Scenario
- Targets
- Collected Credentials or Compromised Systems

Include Statistics

I am lazy - Can we make this even easier?

Yes...Automation!

Program APIs

- BeEF RESTFul API
- Recon-cli
- SET - seautomate

Parse Commandline Tool Output

Python, Perl, & Bash

SpeedPhishing Framework - SPF

Automates common tasks needed to perform a phishing exercise

Written in Python

Minimal external dependencies

https://github.com/tatanus/SPF

Current Features

Harvests Email Address

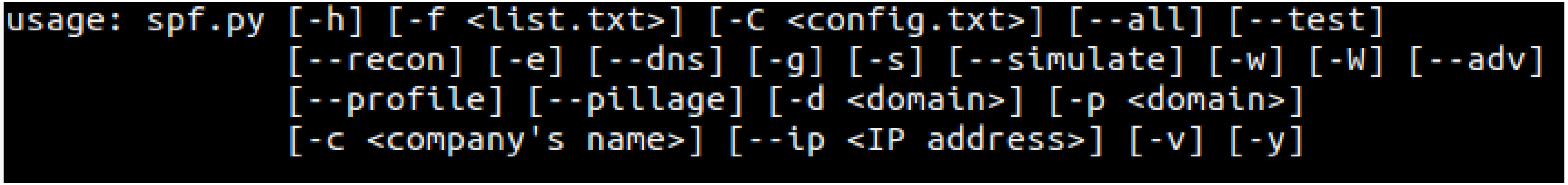
Setups & Hosts Websites

Sends phishing emails to targets

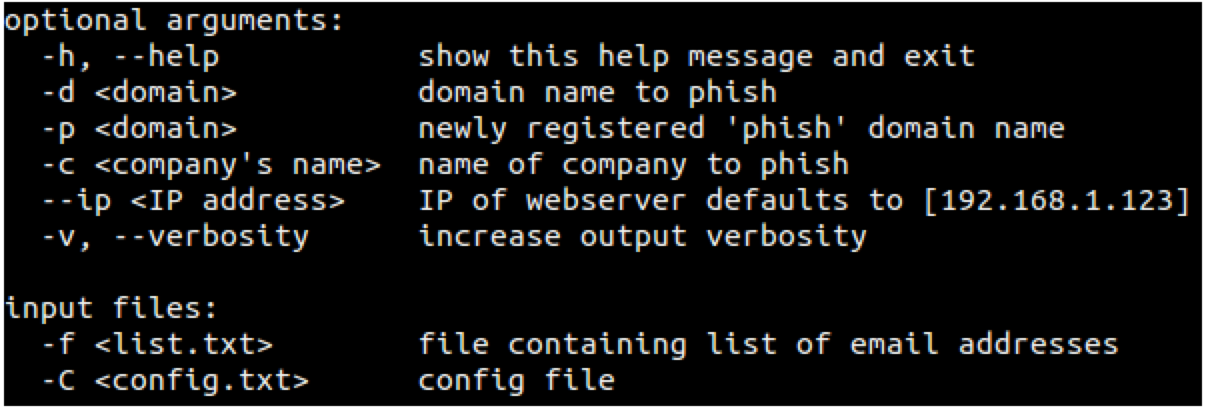
Records Creds and Keystrokes

Creates VERY Simple Report

SPF - Usage Statement / Options



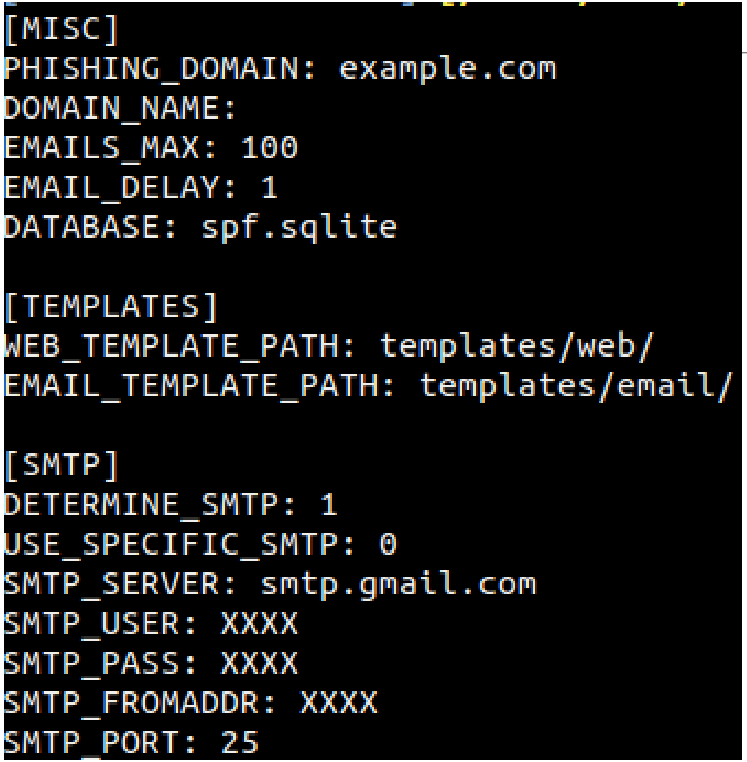
```
usage: spf.py [-h] [-f <list.txt>] [-C <config.txt>] [--all] [--test]
              [--recon] [-e] [--dns] [-g] [-s] [--simulate] [-w] [-W] [--adv]
              [--profile] [--pillage] [-d <domain>] [-p <domain>]
              [-c <company's name>] [--ip <IP address>] [-v] [-y]
```



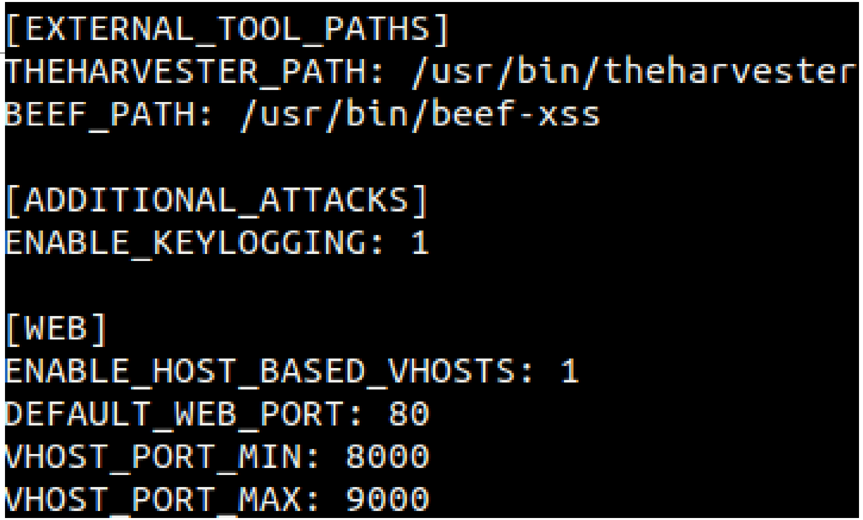
```
optional arguments:
  -h, --help            show this help message and exit
  -d <domain>           domain name to phish
  -p <domain>           newly registered 'phish' domain name
  -c <company's name>   name of company to phish
  --ip <IP address>     IP of webserver defaults to [192.168.1.123]
  -v, --verbosity       increase output verbosity

input files:
  -f <list.txt>         file containing list of email addresses
  -C <config.txt>       config file
```

https://github.com/tatanus/SPF

SPF - Config File



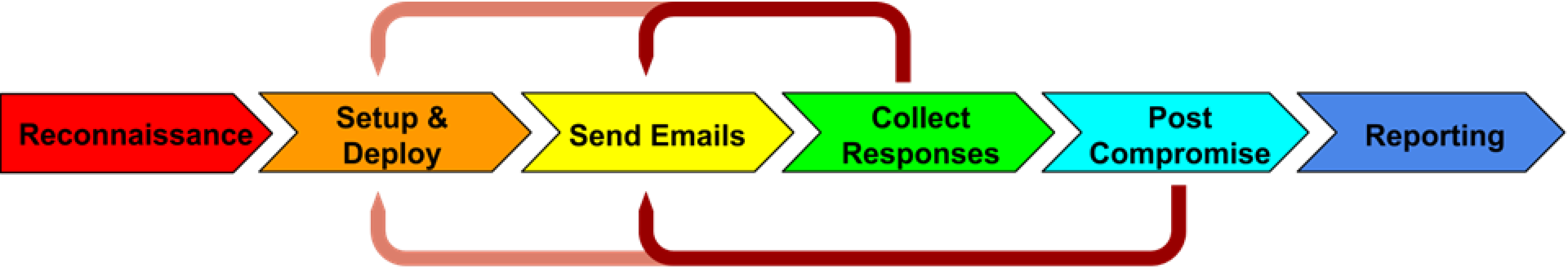
```
[MISC]
PHISHING_DOMAIN: example.com
DOMAIN_NAME:
EMAILS_MAX: 100
EMAIL_DELAY: 1
DATABASE: spf.sqlite

[TEMPLATES]
WEB_TEMPLATE_PATH: templates/web/
EMAIL_TEMPLATE_PATH: templates/email/

[SMTP]
DETERMINE_SMTP: 1
USE_SPECIFIC_SMTP: 0
SMTP_SERVER: smtp.gmail.com
SMTP_USER: XXXX
SMTP_PASS: XXXX
SMTP_FROMADDR: XXXX
SMTP_PORT: 25
```



```
[EXTERNAL_TOOL_PATHS]
THEHARVESTER_PATH: /usr/bin/theharvester
BEEF_PATH: /usr/bin/beef-xss

[ADDITIONAL_ATTACKS]
ENABLE_KEYLOGGING: 1

[WEB]
ENABLE_HOST_BASED_VHOSTS: 1
DEFAULT_WEB_PORT: 80
VHOST_PORT_MIN: 8000
VHOST_PORT_MAX: 9000
```

https://github.com/tatanus/SPF

SPF - Standard Phishing Process



https://github.com/tatanus/SPF

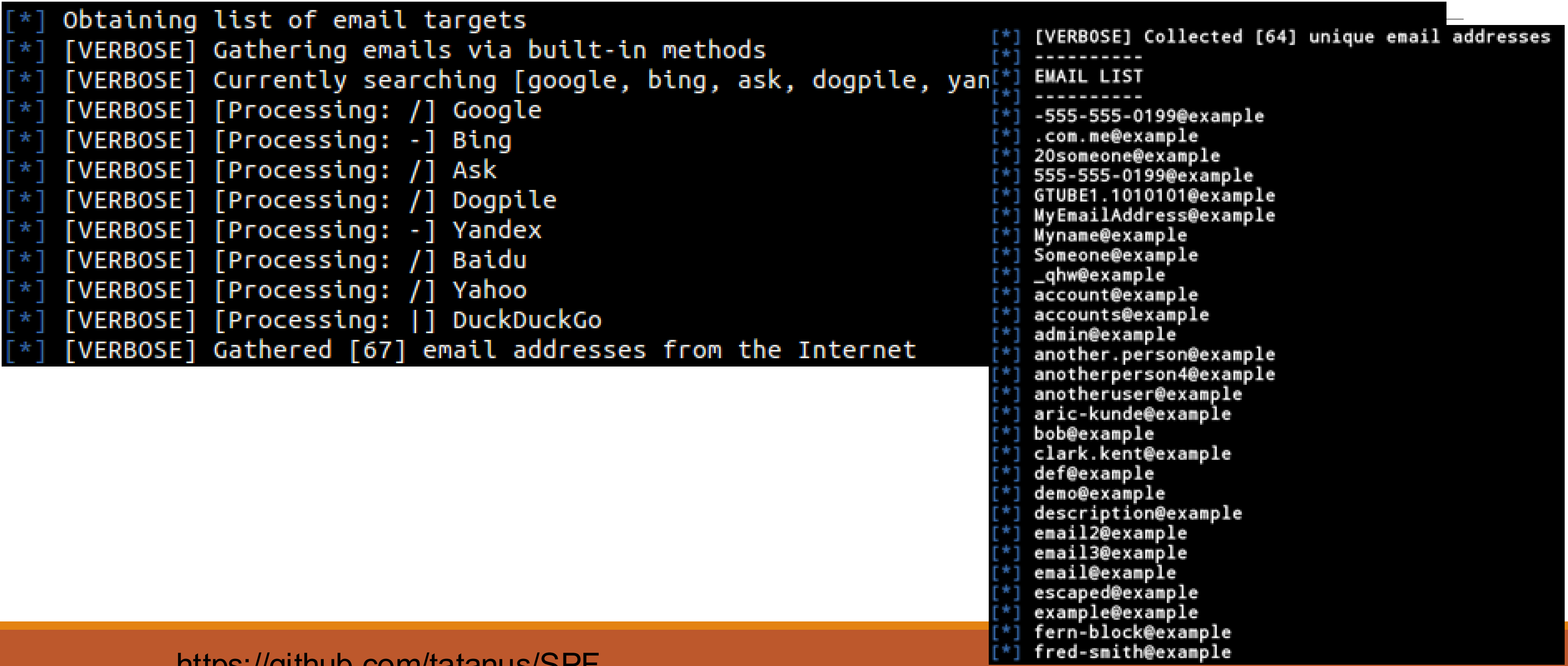
SPF - Reconnaissance

Searches online search engines like:

- Google, Bing, and DuckDuckGo

Can use external tools such as theHarvester

SPF - Identifying Potential Targets



```
[*] Obtaining list of email targets
[*] [VERBOSE] Gathering emails via built-in methods
[*] [VERBOSE] Currently searching [google, bing, ask, dogpile, yan
[*] [VERBOSE] [Processing: /] Google
[*] [VERBOSE] [Processing: -] Bing
[*] [VERBOSE] [Processing: /] Ask
[*] [VERBOSE] [Processing: /] Dogpile
[*] [VERBOSE] [Processing: -] Yandex
[*] [VERBOSE] [Processing: /] Baidu
[*] [VERBOSE] [Processing: /] Yahoo
[*] [VERBOSE] [Processing: |] DuckDuckGo
[*] [VERBOSE] Gathered [67] email addresses from the Internet
```

```
[*] [VERBOSE] Collected [64] unique email addresses
[*] ----------
[*] EMAIL LIST
[*] ----------
[*] -555-555-0199@example
[*] .com.me@example
[*] 20someone@example
[*] 555-555-0199@example
[*] GTUBE1.1010101@example
[*] MyEmailAddress@example
[*] Myname@example
[*] Someone@example
[*] _qhw@example
[*] account@example
[*] accounts@example
[*] admin@example
[*] another.person@example
[*] anotherperson4@example
[*] anotheruser@example
[*] aric-kunde@example
[*] bob@example
[*] clark.kent@example
[*] def@example
[*] demo@example
[*] description@example
[*] email2@example
[*] email3@example
[*] email@example
[*] escaped@example
[*] example@example
[*] fern-block@example
[*] fred-smith@example
```

https://github.com/tatanus/SPF

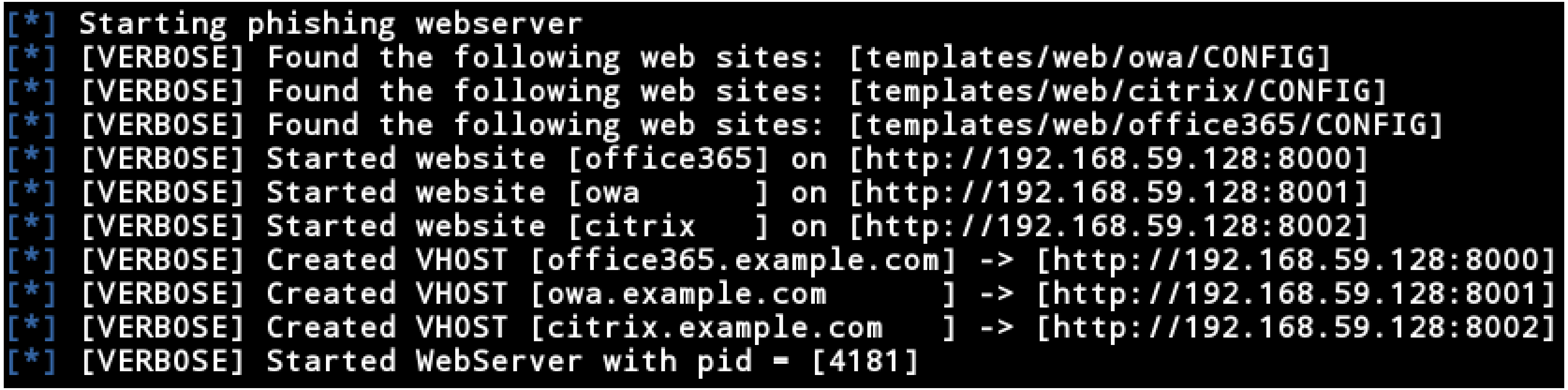
SPF - Setup and Deploy

Built-in web server based on Twisted python library

Templated sample web sites with accompanying email templates

Ability to dynamically clone additional login portals as needed

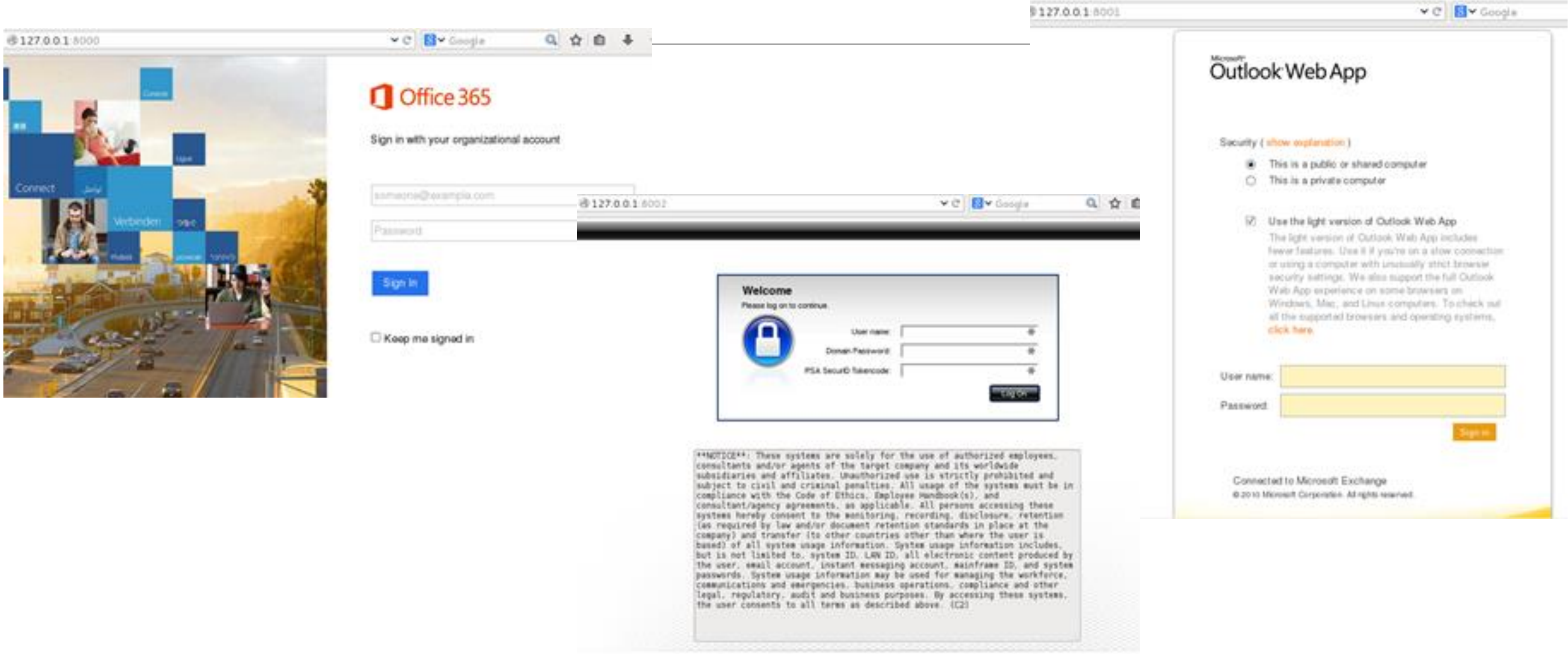
SPF - Loading Web Sites



```
[*] Starting phishing webserver
[*] [VERBOSE] Found the following web sites: [templates/web/owa/CONFIG]
[*] [VERBOSE] Found the following web sites: [templates/web/citrix/CONFIG]
[*] [VERBOSE] Found the following web sites: [templates/web/office365/CONFIG]
[*] [VERBOSE] Started website [office365] on [http://192.168.59.128:8000]
[*] [VERBOSE] Started website [owa      ] on [http://192.168.59.128:8001]
[*] [VERBOSE] Started website [citrix   ] on [http://192.168.59.128:8002]
[*] [VERBOSE] Created VHOST [office365.example.com] -> [http://192.168.59.128:8000]
[*] [VERBOSE] Created VHOST [owa.example.com      ] -> [http://192.168.59.128:8001]
[*] [VERBOSE] Created VHOST [citrix.example.com   ] -> [http://192.168.59.128:8002]
[*] [VERBOSE] Started WebServer with pid = [4181]
```

https://github.com/tatanus/SPF

SPF - Web Sites



Sign in with your organizational account

someone@example.com

Password

□ Keep me signed in

Welcome

Please log on to continue.

User name:

Domain Password:

RSA SecurID Tokencode:

```
**NOTICE**: These systems are solely for the use of authorized employees,
consultants and/or agents of the target company and its worldwide
subsidiaries and affiliates. Unauthorized use is strictly prohibited and
subject to civil and criminal penalties. All usage of the systems must be in
compliance with the Code of Ethics, Employee Handbook(s), and
consultant/agency agreements, as applicable. All persons accessing these
systems hereby consent to the monitoring, recording, disclosure, retention
(as required by law and/or document retention standards in place at the
company) and transfer (to other countries other than where the user is
based) of all system usage information. System usage information includes,
but is not limited to, system ID, LAN ID, all electronic content produced by
the user, email account, instant messaging account, mainframe ID, and system
passwords. System usage information may be used for managing the workforce,
communications and emergencies, business operations, compliance and other
legal, regulatory, audit and business purposes. By accessing these systems,
the user consents to all terms as described above. (C2)
```

Security (show explanation)

● This is a public or shared computer

○ This is a private computer

☑ Use the light version of Outlook Web App

The light version of Outlook Web App includes fewer features. Use it if you're on a slow connection or using a computer with unusually strict browser security settings. We also support the full Outlook Web App experience on some browsers on Windows, Mac, and Linux computers. To check out all the supported browsers and operating systems, click here.

User name:

Password:

Connected to Microsoft Exchange

© 2010 Microsoft Corporation. All rights reserved.

https://github.com/tatanus/SPF

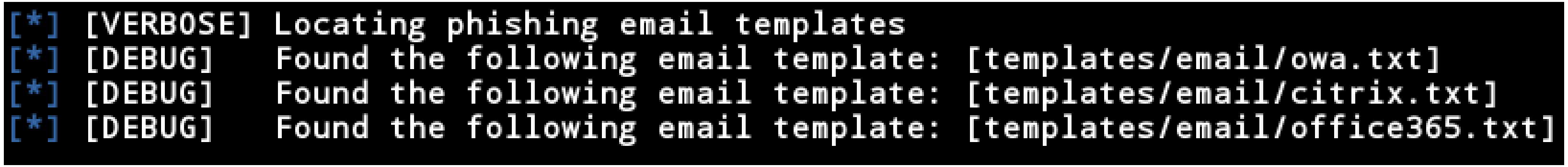
SPF - Sending Emails

Can simulate sending of emails

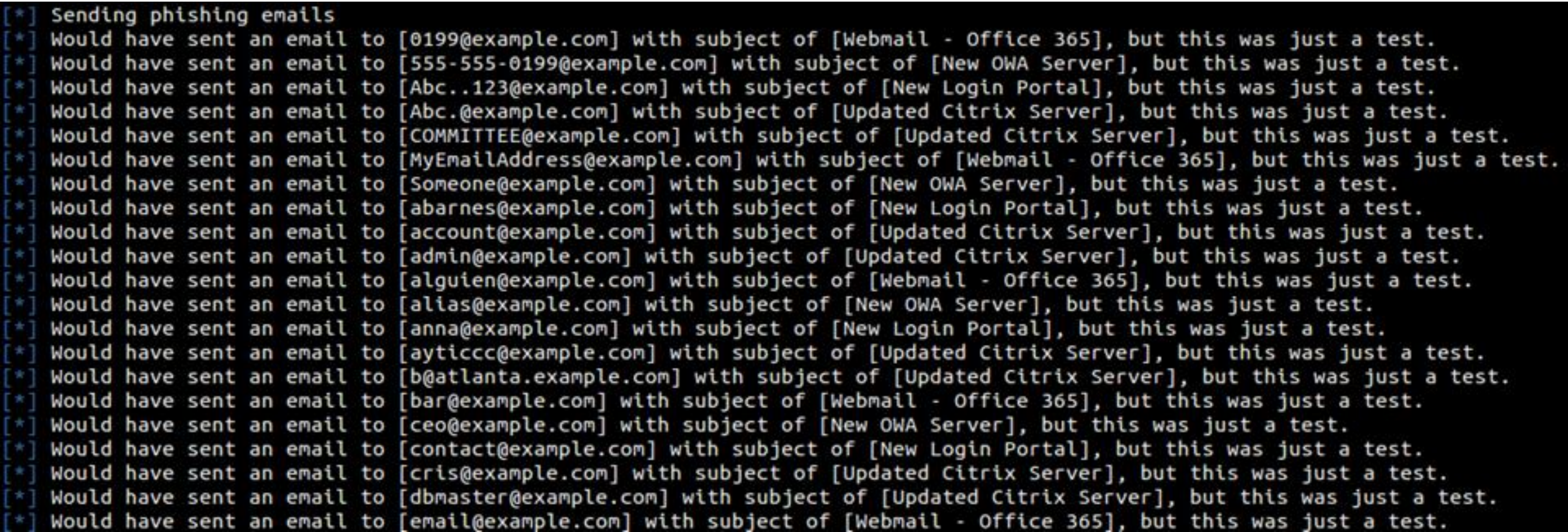
Sends emails in a round robin style alternating across all phishing sites

Sends emails via 3rd party SMTP server or by connecting directly to the target's mail server

SPF - Sending Emails



```
[*] [VERBOSE] Locating phishing email templates
[*] [DEBUG]   Found the following email template: [templates/email/owa.txt]
[*] [DEBUG]   Found the following email template: [templates/email/citrix.txt]
[*] [DEBUG]   Found the following email template: [templates/email/office365.txt]
```



```
[*] Sending phishing emails
[*] Would have sent an email to [0199@example.com] with subject of [Webmail - Office 365], but this was just a test.
[*] Would have sent an email to [555-555-0199@example.com] with subject of [New OWA Server], but this was just a test.
[*] Would have sent an email to [Abc..123@example.com] with subject of [New Login Portal], but this was just a test.
[*] Would have sent an email to [Abc.@example.com] with subject of [Updated Citrix Server], but this was just a test.
[*] Would have sent an email to [COMMITTEE@example.com] with subject of [Updated Citrix Server], but this was just a test.
[*] Would have sent an email to [MyEmailAddress@example.com] with subject of [Webmail - Office 365], but this was just a test.
[*] Would have sent an email to [Someone@example.com] with subject of [New OWA Server], but this was just a test.
[*] Would have sent an email to [abarnes@example.com] with subject of [New Login Portal], but this was just a test.
[*] Would have sent an email to [account@example.com] with subject of [Updated Citrix Server], but this was just a test.
[*] Would have sent an email to [admin@example.com] with subject of [Updated Citrix Server], but this was just a test.
[*] Would have sent an email to [alguien@example.com] with subject of [Webmail - Office 365], but this was just a test.
[*] Would have sent an email to [alias@example.com] with subject of [New OWA Server], but this was just a test.
[*] Would have sent an email to [anna@example.com] with subject of [New Login Portal], but this was just a test.
[*] Would have sent an email to [ayticcc@example.com] with subject of [Updated Citrix Server], but this was just a test.
[*] Would have sent an email to [b@atlanta.example.com] with subject of [Updated Citrix Server], but this was just a test.
[*] Would have sent an email to [bar@example.com] with subject of [Webmail - Office 365], but this was just a test.
[*] Would have sent an email to [ceo@example.com] with subject of [New OWA Server], but this was just a test.
[*] Would have sent an email to [contact@example.com] with subject of [New Login Portal], but this was just a test.
[*] Would have sent an email to [cris@example.com] with subject of [Updated Citrix Server], but this was just a test.
[*] Would have sent an email to [dbmaster@example.com] with subject of [Updated Citrix Server], but this was just a test.
[*] Would have sent an email to [email@example.com] with subject of [Webmail - Office 365], but this was just a test.
```

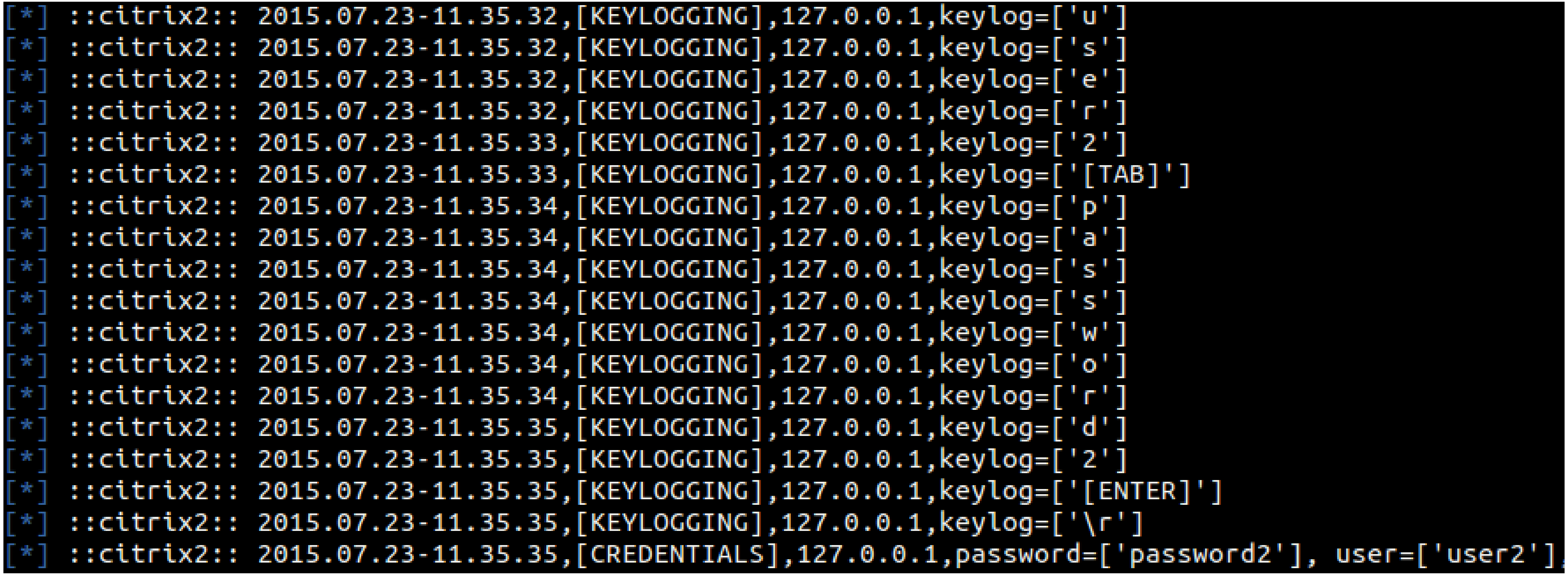
SPF - Collect Responses & Post Exploitation

Logs all access to the web sites
Logs all form submissions
Logs all key strokes

Has ability to pillage email accounts

https://github.com/tatanus/SPF

SPF - Collecting Results



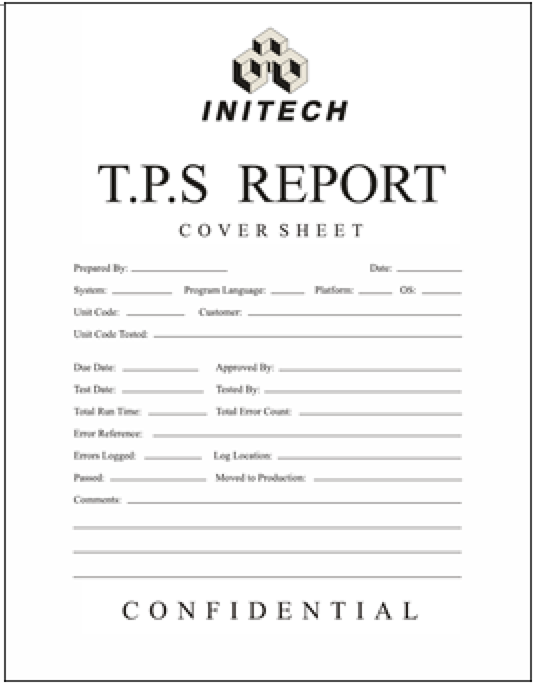
```
[*] ::citrix2:: 2015.07.23-11.35.32,[KEYLOGGING],127.0.0.1,keylog=['u']
[*] ::citrix2:: 2015.07.23-11.35.32,[KEYLOGGING],127.0.0.1,keylog=['s']
[*] ::citrix2:: 2015.07.23-11.35.32,[KEYLOGGING],127.0.0.1,keylog=['e']
[*] ::citrix2:: 2015.07.23-11.35.32,[KEYLOGGING],127.0.0.1,keylog=['r']
[*] ::citrix2:: 2015.07.23-11.35.33,[KEYLOGGING],127.0.0.1,keylog=['2']
[*] ::citrix2:: 2015.07.23-11.35.33,[KEYLOGGING],127.0.0.1,keylog=['[TAB]']
[*] ::citrix2:: 2015.07.23-11.35.34,[KEYLOGGING],127.0.0.1,keylog=['p']
[*] ::citrix2:: 2015.07.23-11.35.34,[KEYLOGGING],127.0.0.1,keylog=['a']
[*] ::citrix2:: 2015.07.23-11.35.34,[KEYLOGGING],127.0.0.1,keylog=['s']
[*] ::citrix2:: 2015.07.23-11.35.34,[KEYLOGGING],127.0.0.1,keylog=['s']
[*] ::citrix2:: 2015.07.23-11.35.34,[KEYLOGGING],127.0.0.1,keylog=['w']
[*] ::citrix2:: 2015.07.23-11.35.34,[KEYLOGGING],127.0.0.1,keylog=['o']
[*] ::citrix2:: 2015.07.23-11.35.34,[KEYLOGGING],127.0.0.1,keylog=['r']
[*] ::citrix2:: 2015.07.23-11.35.35,[KEYLOGGING],127.0.0.1,keylog=['d']
[*] ::citrix2:: 2015.07.23-11.35.35,[KEYLOGGING],127.0.0.1,keylog=['2']
[*] ::citrix2:: 2015.07.23-11.35.35,[KEYLOGGING],127.0.0.1,keylog=['[ENTER]']
[*] ::citrix2:: 2015.07.23-11.35.35,[KEYLOGGING],127.0.0.1,keylog=['\r']
[*] ::citrix2:: 2015.07.23-11.35.35,[CREDENTIALS],127.0.0.1,password=['password2'], user=['user2']
```

https://github.com/tatanus/SPF

Reports

Saves all data and activity logs to assessment specific directory structure

Generates simple HTML report



INITECH

T.P.S REPORT

COVER SHEET

Prepared By: ____________ Date: ________

System: ________ Program Language: ____ Platform: ____ OS: ____

Unit Code: ________ Customer: ____________

Unit Code Tested: ____________

Due Date: ________ Approved By: ____________

Test Date: ________ Tested By: ____________

Total Run Time: ________ Total Error Count: ____________

Error Reference: ____________

Errors Logged: ________ Log Location: ____________

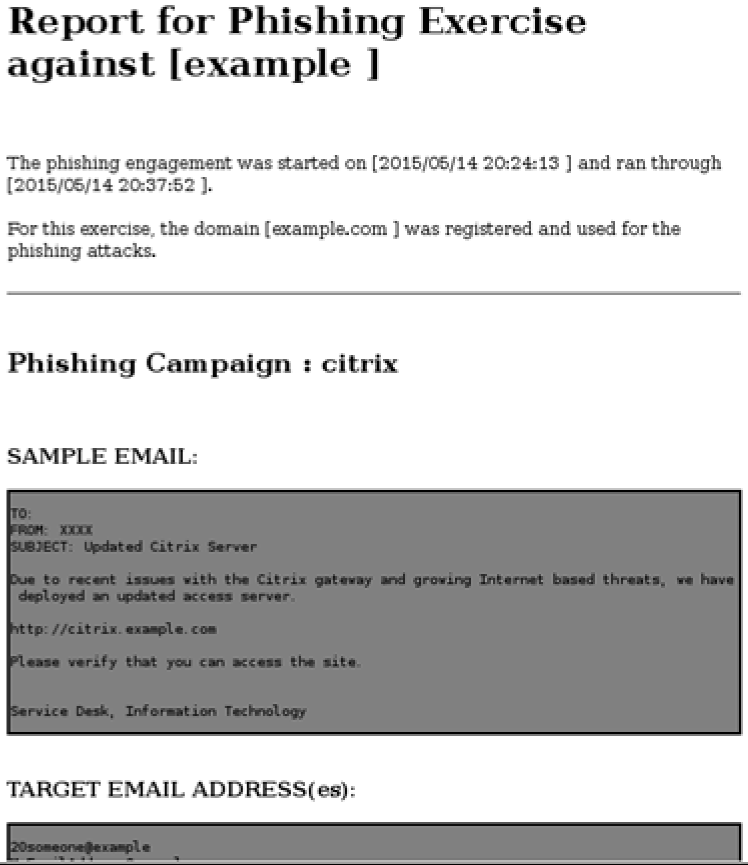
Passed: ________ Moved to Production: ____________

Comments: ____________

CONFIDENTIAL

https://github.com/tatanus/SPF

SPF - Simple Report



Report for Phishing Exercise against [example]

The phishing engagement was started on [2015/05/14 20:24:13] and ran through [2015/05/14 20:37:52].

For this exercise, the domain [example.com] was registered and used for the phishing attacks.

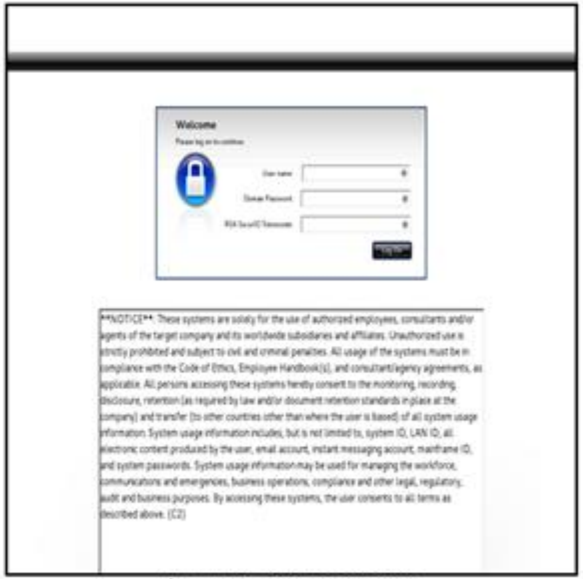
Phishing Campaign : citrix

SAMPLE EMAIL:

```
TO:
FROM:  XXXX
SUBJECT:  Updated Citrix Server

Due to recent issues with the Citrix gateway and growing Internet based threats, we have
 deployed an updated access server.

http://citrix.example.com

Please verify that you can access the site.


Service Desk, Information Technology
```

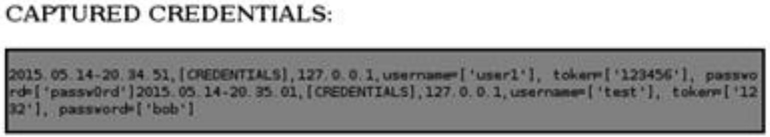
TARGET EMAIL ADDRESS(es):

```
20someone@example
```



NOTICE: These systems are solely for the use of authorized employees, consultants and/or agents of the target company and its worldwide subsidiaries and affiliates. Unauthorized use is strictly prohibited and subject to civil and criminal penalties. All usage of the systems must be in compliance with the Code of Ethics, Employee Handbook(s), and consultant/agency agreements, as applicable. All persons accessing these systems hereby consent to the monitoring, recording, disclosure, retention (as required by law and/or document retention standards in place at the company) and transfer (to other countries other than where the user is based) of all system usage information. System usage information includes, but is not limited to, system ID, LAN ID, all electronic content produced by the user, email account, instant messaging account, mainframe ID, and system passwords. System usage information may be used for managing the workforce, communications and emergencies, business operations, compliance and other legal, regulatory, audit and business purposes. By accessing these systems, the user consents to all terms as described above. (C2)

http://192.168.59.128:8002



CAPTURED CREDENTIALS:

```
2015.05.14-20.34.51,[CREDENTIALS],127.0.0.1,username=['user1'], token=['123456'], passwo
rd=['passw0rd']2015.05.14-20.35.01,[CREDENTIALS],127.0.0.1,username=['test'], token=['12
32'], password=['bob']
```

Advanced/Experimental Features

Company Profiler

- Identify which if any templates should be used
- Dynamically generate new "target-specific" phishing sites

Pillage

- Verify credentials
- Download attachments
- Search for "SSN, password, login, etc…)

SPF Demo

We shall all now pray to the demo gods

Future Work/Features

More external tools

Better Profiling/Pillaging

Fancy Reports

Incorporate SSL (possibly via *https://letsencrypt.org/*).

Suggestions?

A HUGE Thank You to:

Recon-ng - Tim Tomes (lanmaster53)
BeEF - Wade Alcorn
theHarvester - Christian Martorella
Social Engineering Toolkit - Dave Kennedy
Morning Catch - Raphael Mudge

Defense

Preparation

- User Awareness & Periodic Testing

Detection & Analysis

- Alerts, Mail Proxies

Containment, Eradication and Recovery

- Have a plan that is ready and tested

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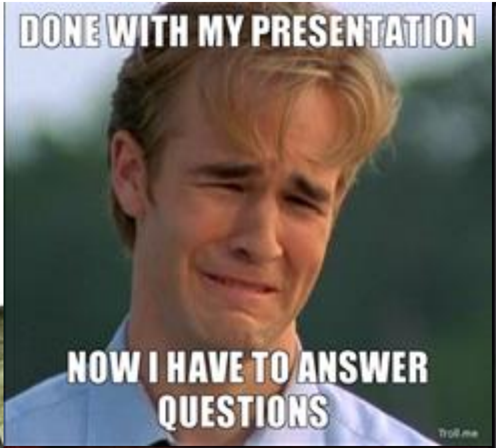
Thank You!

YOU GET A THANK YOU!
AND YOU GET A THANK YOU!
AND YOU GET A THANK YOU!
EVERYONE GETS A THANK YOU!

BRACE YOURSELF
PRESENTATION QUESTIONS ARE COMING
memegenerator.net


DONE WITH MY PRESENTATION
NOW I HAVE TO ANSWER QUESTIONS
Troll.me

THANK YOU!!
THANK YOU!!
THANK YOU!!
Memes & Funny Pics FRABZ.COM

THANK YOU
I TRY
Troll.me

YUSS
THANK YOU

I DON'T ALWAYS SAY THANK YOU
BUT WHEN I DO, YOU'RE WELCOME

QUESTIONS
QUESTIONS EVERYWHERE

411

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