A SAMURAI-WTF INTRO TO THE ZED ATTACK PROXY

Justin Searle – justin@utilisec.com - @meeas

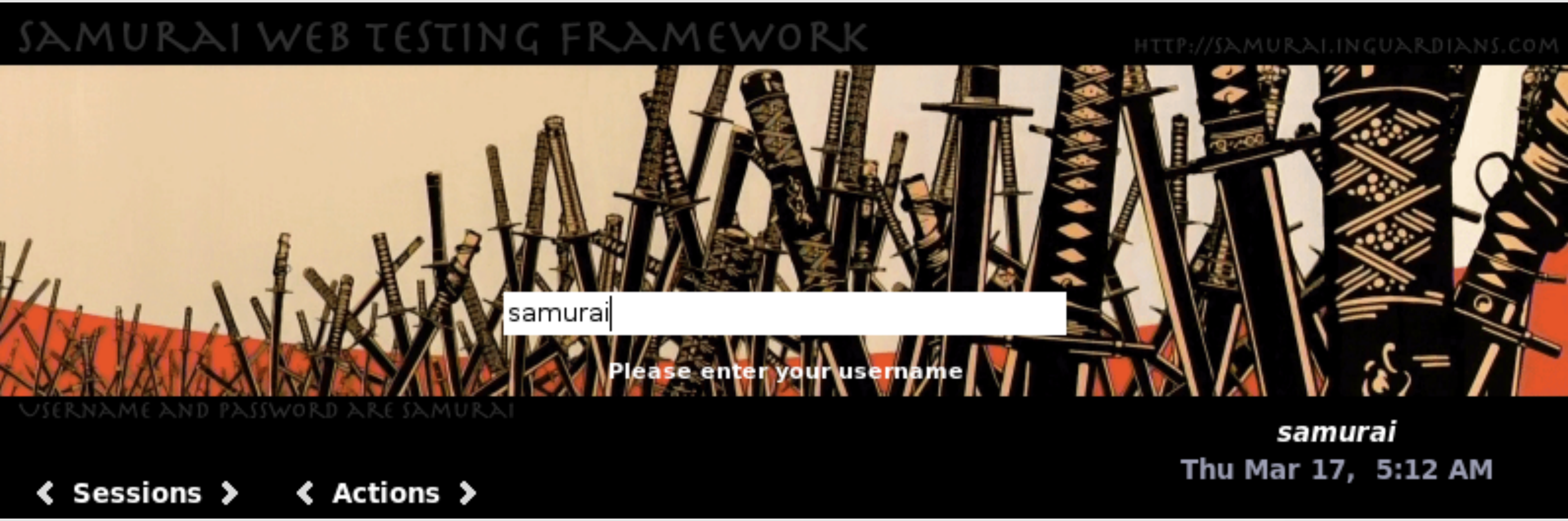
Samurai-WTF

- 2 Versions: Live DVD and VMware Image
- Based on Ubuntu Linux
- Over 100 tools, extensions, and scripts, included:
  - w3af
  - BeEF
  - Burp Suite
  - Grendel-Scan
  - DirBuster
  - Maltego CE
  - Nikto
  - WebScarab
  - Rat Proxy
  - nmap

Project URLs

- Main project page:
  - http://www.samurai-wtf.com
- Support information (and tracker) at:
  - http://sourceforge.net/projects/samurai/support
- Development mailing list at:
  - https://lists.sourceforge.net/lists/listinfo/samurai-devel
- SVN repository:
  - svn co https://samurai.svn.sourceforge.net/ svnroot/samurai samurai
- Project Leads:
  - Kevin Johnson - kjohnson@secureideas.net - @secureideas
  - Justin Searle - justin@utilisec.com - @meeas
  - Frank DiMaggio - fdimaggio@secureideas.net - @hanovrfst
  - Raul Siles - raul@taddong.com - @taddong

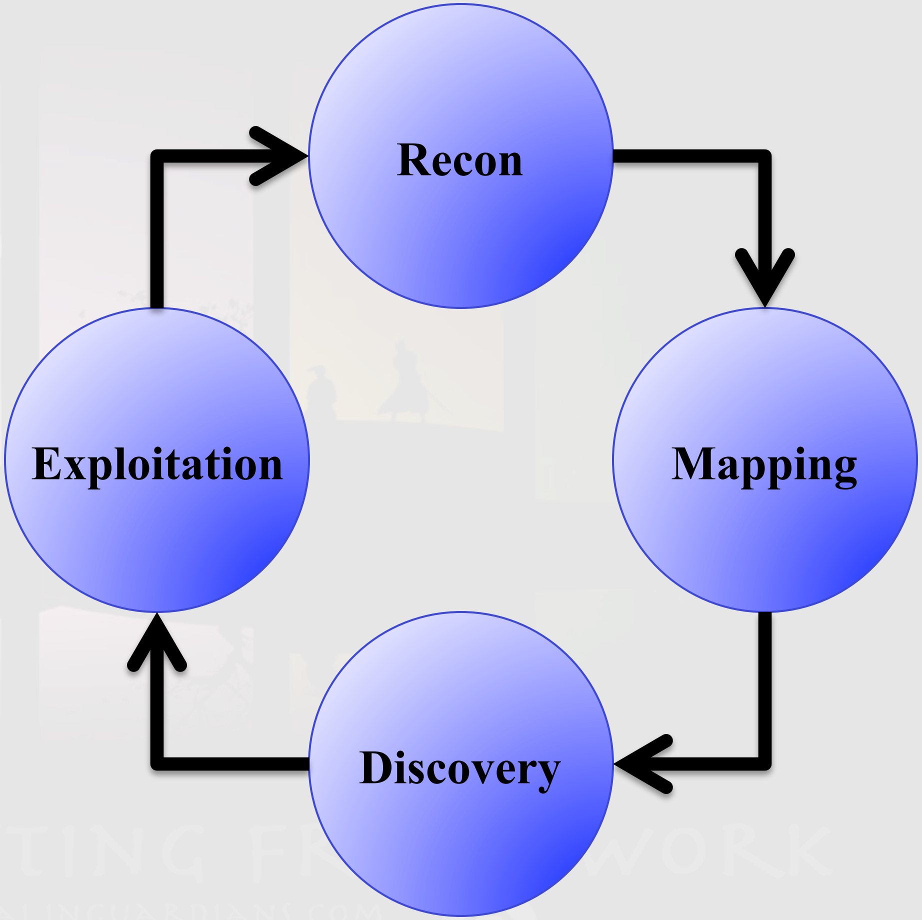
Logging In


SAMURAI WEB TESTING FRAMEWORK
HTTP://SAMURAI.INGUARDIANS.COM
samurai
Please enter your username
USERNAME AND PASSWORD ARE SAMURAI
samurai
Thu Mar 17, 5:12 AM
Sessions
Actions

- Username: samurai
- Password: samurai
- http://whatisthesamuraipassword.com

Formal Methodology

- A simple methodology:
  - Recon: Before touching the app
  - Mapping: Learning the app from a user/developer's perspective
  - Discovery: Learning the app from an attacker's perspective
  - Exploitation: Need I say more?!?
- Every step leads to new insight into the application and target environment
- New insight provides additional opportunities for previous phases



Recon

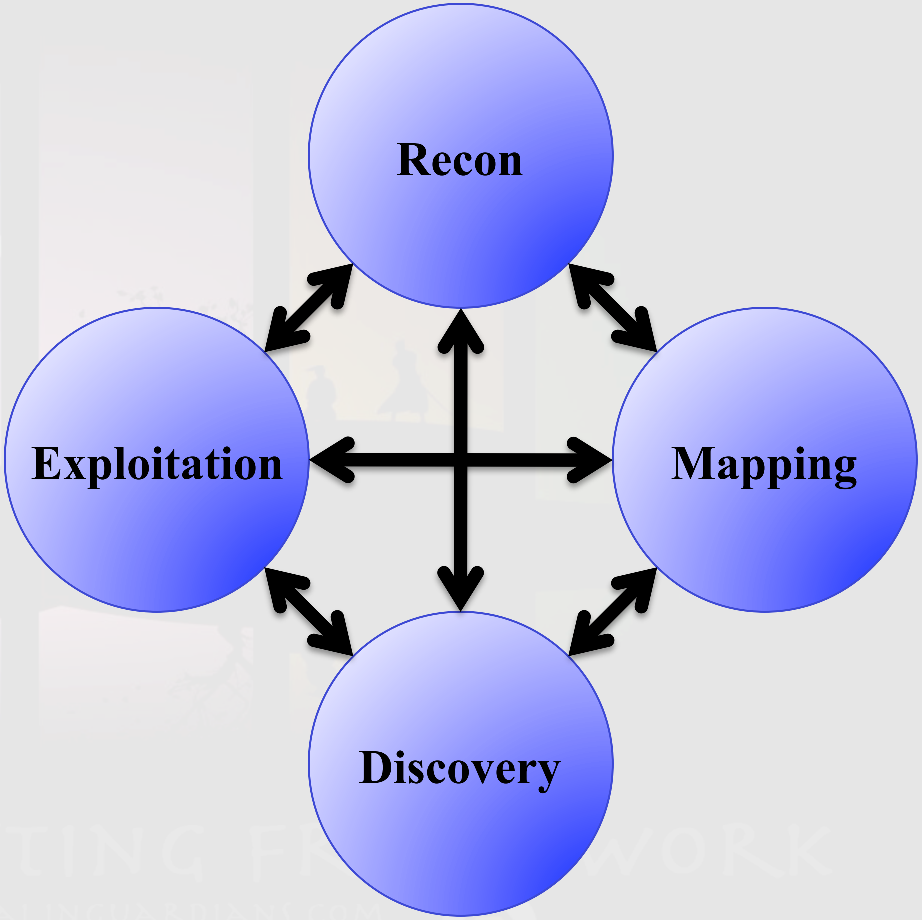
Mapping

Discovery

Exploitation

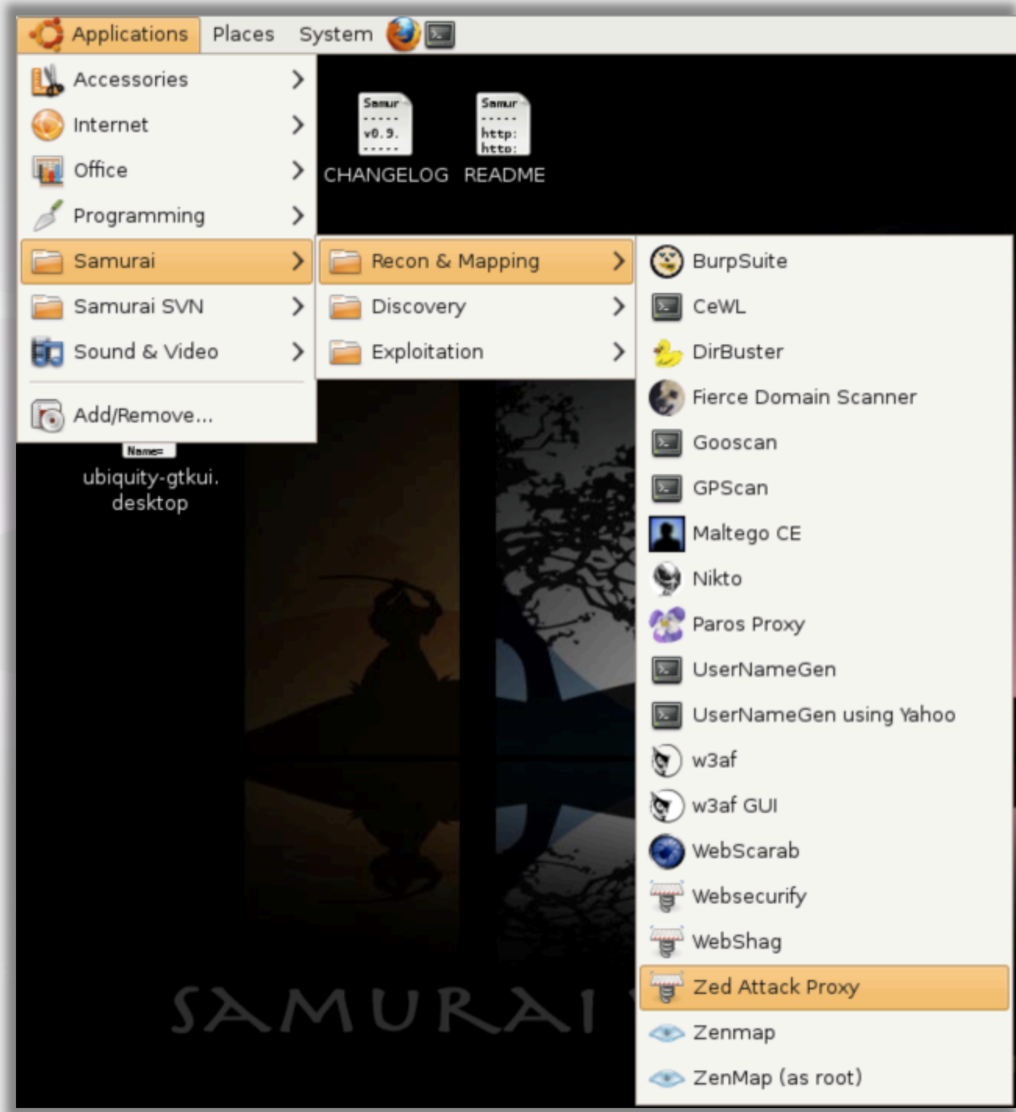
Methodology in Real Life

- We still follow the overall clockwise flow, but we often move back and forth between processes
- Trick is to keep focused and progressing through the steps
- General rule for deviation from clockwise progression:
  - 5 attempts or 5 minutes



Zed Attack Proxy (ZAP)

- Lead: Simon Bennetts (Psiinon)
- Site: code.google.com/p/zaproxy
- Purpose: An interception proxy with integrated tools to find vulnerabilities. This project was forked from Paros Proxy and is actively maintained (unlike Paros).
- Language: Java
- Notable Features:
  - Port Scanner
  - Automated and Passive Scanner
  - Spider, Brute Force, Fuzzing tools
  - Adding Notes and Alerts to request/ response pairs
  - Great "Filters" which allow logging of unique elements and auto regex search/replace



Updating ZAP

- Simon and team did a special ZAP 1.3.4 release for this Black Hat workshop to provide us the following new features:
  - Custom input files for the Fuzzing and Brute Force tools
  - Ability to disable recursion in the Brute Force tool
  - Inverse regex searches and Fuzz match highlighting
  - Support for cookies and POST data in third party tools
- We'll be using this version (1.3.4) for this workshop
  - Download it at: http://code.google.com/p/zaproxy
  - Extract the files and run "zap.sh"

ZAP's Extra Polish

- Beautiful Java UI regardless of OS
- Built in user documentation and help pages
- Automatically checks for updates
- Flexible UI allows you to focus on important items
- Universal status bar for all tools in one place
- Supports 11 languages and growing
- REST API for advanced users (http://zap)

Using Firefox with ZAP

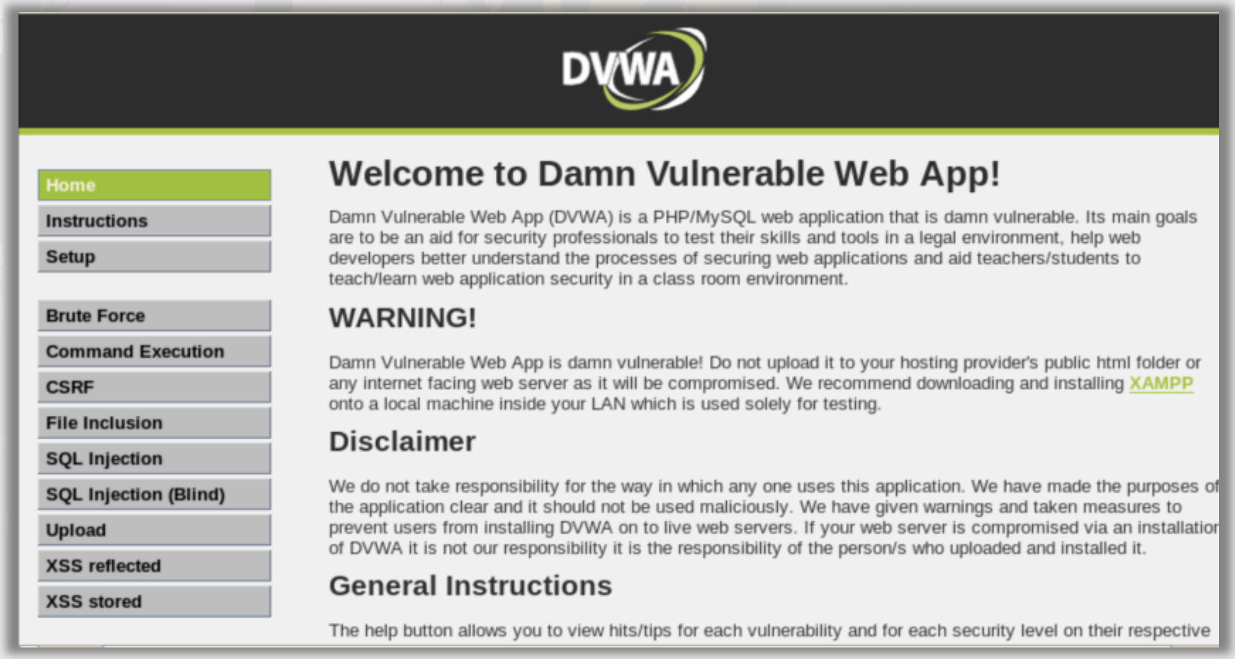
- Configuring Firefox to trust ZAP's dynamic SSL certificates
  - Have ZAP generate a SSL Root CA
  - Save the certificate to your file system
  - Import it into FireFox
- Use Foxy Proxy to quickly configure Firefox to use ZAP as a proxy

Today's Target: DVWA

Damn Vulnerable Web App (DVWA) is a PHP/MySQL web application that is damn vulnerable. Its main goals are to be an aid for security professionals to test their skills and tools in a legal environment, help web developers better understand the processes of securing web applications and aid teachers/ students to teach/learn web application security in a class room environment.

Damn Vulnerable Web App (DVWA)

- Project Lead: Ryan Dewhusrt (ethicalhack3r)
- Site: http://sourceforge.net/projects/dvwa
- Purpose: a light weight PHP/MySQL web application that is easy to use and full of vulnerabilities to exploit. Used to learn or teach the art of web application security
- Language: PHP
- Accessing:
  - http://dvwa
  - https://dvwa
    - admin
    - password
- Notable features:
  - GET requests
  - 3 difficulty levels
  - Includes PHP IDS



Welcome to Damn Vulnerable Web App!

Damn Vulnerable Web App (DVWA) is a PHP/MySQL web application that is damn vulnerable. Its main goals are to be an aid for security professionals to test their skills and tools in a legal environment, help web developers better understand the processes of securing web applications and aid teachers/students to teach/learn web application security in a class room environment.

WARNING!

Damn Vulnerable Web App is damn vulnerable! Do not upload it to your hosting provider's public html folder or any internet facing web server as it will be compromised. We recommend downloading and installing XAMPP onto a local machine inside your LAN which is used solely for testing.

Disclaimer

We do not take responsibility for the way in which any one uses this application. We have made the purposes of the application clear and it should not be used maliciously. We have given warnings and taken measures to prevent users from installing DVWA on to live web servers. If your web server is compromised via an installation of DVWA it is not our responsibility it is the responsibility of the person/s who uploaded and installed it.

General Instructions

The help button allows you to view hits/tips for each vulnerability and for each security level on their respective

Demo Tasks: DVWA Mapping

1. Port Scanning in ZAP
2. Basics techniques to manual map an application
   - Does the application authenticate users?
     - How do you login and logout?
     - How does the application track session state?
     - How do update account settings such as passwords?
     - How do you reset or recover an account?
   - Where does the application accept user input?
     - Which inputs are reflected back to the user?
     - Which inputs might be used in queries to a database?
     - Which inputs might be used in system tools or file names?
   - Which pages return the slowest or fastest?
   - Which pages are dangerous for automated tools?
3. Adding alerts for manual findings
4. Using the Spider tool to finish mapping DVWA

Demo Tasks: DVWA Discovery

1. Finding unlinked resources with the Brute Force tool
2. Passive vulnerability scans
3. Active vulnerability scans
4. Third party tool integration
   - We'll be using nikto for the demo
   - Syntax:

```
nikto  -host  %site%  -port  %port%
```

1. Fuzzing

Demo Tasks: DVWA Exploitation

- Leveraging the Fuzzing tool to enumerate commands
- Using third party tools inside ZAP
  - We'll be using sqlmap for this today
  - Syntax:

```
sqlmap -u %url% --cookie %cookie% -v 0
--drop-set-cookie --dbs
```

Contact Information

Upcoming SamuraiWTF Black Hat courses:

- Abu Dhabi – Dec. 12-13, 2011
- Amsterdam – Mar. 14, 2012 (one-day version)
- Las Vegas – July 21-22 & 23-24, 2012

Justin Searle

Managing Partner – UtiliSec
justin@utilisec.com
801-784-2052
@meeas

Kevin Johnson

Owner – SecureIdeas
kjohnson@secureideas.net
904-639-6709
@secureideas