

PENTESTER ACADEMY

Pentesting automation with **Reconmap**

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About the presenter



- ▶ Reconmap's founder
- ▶ +20 years doing software engineering
- ▶ Cyber security enthusiast
- ▶ <https://github.com/santiagolizardo>

Reconmap's origin

Pentesting pain points

- ▶ Repetition
- ▶ Ineffective collaboration
- ▶ Ineffective communication

Reconmap's mission

Reconmap's mission is to **accelerate the time it takes to do vulnerability assessment and pentesting**, through the use of templating, automation and machine learning.
From weeks to days, or days to hours.

Reconmap's approach

- ▶ Templates to avoid repetition
- ▶ Automation and ML to speed up the process

Result:

Pentesters spending more time doing research, and less time doing repetitive, boring, tedious work such as parsing files manually or creating handcrafted pentest reports for their clients.

Reconmap's Today - September 2021

- ▶ 1 year old
- ▶ Open source and SaaS
- ▶ Small but growing community
- ▶ Used in production by people around the world

Recomap's feature set

- ▶ Client, project, tasks management all in one.
- ▶ Reusable project and vulnerability templates
- ▶ Automatic pentest report generation (HTML, PDF, DOCX)
- ▶ Command line interface (CLI) and Rest API
- ▶ Integrated browser terminal
- ▶ Can scale to teams and projects of any size.
- ▶ Stats dashboard, user roles, documents, markdown, audit log, integrated search, tagging, data import/export, ...

Who is it for?

Any InfoSec professional:













- ▶ Blue, Purple and Red teams
- ▶ Pentesters
- ▶ Bug bounty hunters
- ▶ Ethical hackers
- ▶ Security researchers

Individual or teams

Pentesting step by step with Reconmap





1. Create client
2. Create project from scratch or template
3. Complete tasks in the project. Some might require running command automation.
4. Try exploit the vulnerabilities found
5. Generate report for client and share

Step 1: Setup client


Clients					
Name	URL	Contact name	Contact email	Contact phone	
 Insecure Co.	http://in.se.cure 	John Doe	John.Doe@in.se.cure	+99 123 245 389	Edit 
 The OWASP Foundation	https://owasp.org 	N/A	N/A	+1 951-692-7703	Edit 
 test	test 	test	test@test.test	01	Edit 
 asdf	http://asdf.de 	foo	foo@foo.de	1233245345	Edit 

Step 1: Setup client

Clients

Name	URL
 Insecure Co.	http://in.se.cu
 The OWASP Foundation	https://owasp.org
 test	test
 asdf	http://asdf.de

Client

 The OWASP Foundation

Details

Client's projects

Properties

Name

The OWASP Foundation

URL

<https://owasp.org>

Contact name

N/A

Contact email


N/A

Contact phone

+1 951-492-7703

Relations

Created by


 Jane Doe

Timestamps


Created

3 weeks ago


Edit




Edit



Edit



Edit





Step 1: Setup client

The screenshot displays a web application interface with a dark theme. On the left, a 'Clients' sidebar lists four clients: Insecure Co., The OWASP Foundation, test, and asdf. The main area shows the details for 'The OWASP Foundation' client, including its URL, contact name, email, and phone number. On the right, a 'Users and Permissions' panel lists four users: Jane Doe (admin), Lead pentester (su), Infosec pro (user), and Dear Customer (cust), each with a role badge.

Clients

Name	URL
Insecure Co.	http://in.se/cu
The OWASP Foundation	https://owasp.org/
test	test
asdf	http://asdf.de

The OWASP Foundation

Properties

Name: The OWASP Foundation

URL: <https://owasp.org/>

Contact name: N/A





Contact email: N/A

Contact phone: +1 961-492-7703

Users and Permissions

	Full name	Username	Role
<input type="checkbox"/>	Jane Doe	admin	administrator
<input type="checkbox"/>	Lead pentester	su	superuser
<input type="checkbox"/>	Infosec pro	user	user
<input type="checkbox"/>	Dear Customer	cust	client

Step 2: Setup project

Project templates			
Name	Description	Number of tasks	
 Linux host template	Project template to show general linux host reconnaissance tasks	3	+ Clone and edit Edit Delete
 Bounty Hunter Methodology	The Bug Bounty Hunter Methodology v3 by @jhaddix	11	+ Clone and edit Edit Delete
 Sayaan Alam's bug hunting list	Bug hunting - List of tasks created by Sayaan Alam (@ehsayaan). A very systemati...	24	+ Clone and edit Edit Delete
 Webapp pentesting project by https://hackercombat.com/		26	+ Clone and edit Edit Delete

Step 2: Setup project

The screenshot shows the 'WebGoat (test project)' configuration page in Burp Suite. The interface is dark-themed. At the top, there's a breadcrumb 'Projects' and a set of action buttons: 'Edit', 'Generate Report', 'Manage Members', 'Archive', and 'Delete'. Below this, the project name 'WebGoat (test project)' is displayed with a small icon. A sidebar on the left lists various project categories: 'Name', 'Lir', 'Bio', 'Me', 'Sa', 'hu', 'Wc', 'Pr', and 'ht'. The main content area has tabs for 'Details', 'Targets', 'Tasks', 'Vulnerabilities', 'Notes', and 'Attachments'. The 'Details' tab is active, showing 'Project details' on the left and 'Relations' and 'Timestamps' on the right. The 'Project details' section includes fields for 'Visibility' (set to 'Private'), 'Status' (set to 'Active'), and 'Description' (a paragraph about WebGoat being an insecure application for testing vulnerabilities). The 'Relations' section shows the 'Client' as 'The OWASP Foundation' and 'Created by' as 'Jane Doe'. The 'Timestamps' section shows the project was 'Created' '3 weeks ago'. On the far right, there are three red trash can icons for deleting related items.

Projects

Edit Generate Report Manage Members Archive Delete

Project

WebGoat (test project)

Name Details Targets Tasks Vulnerabilities Notes Attachments

Project details

Visibility

Private

Status

Active

Description

WebGoat is a deliberately insecure application that allows interested developers just like you to test vulnerabilities commonly found in Java-based applications that use common and popular open source components.

Relations

Client

The OWASP Foundation

Created by

Jane Doe

Timestamps

Created

3 weeks ago

Step 2: Setup project

The screenshot displays a web application security tool interface. At the top, a navigation bar shows 'Projects' with a back arrow, and buttons for 'Edit', 'Generate Report', 'Manage Members', 'Archive', and 'Delete'. Below this, a project selection dropdown shows 'WebGoat (test project)'. The main interface has tabs for 'Details', 'Targets', 'Tasks', 'Vulnerabilities', 'Notes', and 'Attachments'. The 'Tasks' tab is active, showing a list of tasks for the 'Web server pentest project'. The tasks list includes a summary, description, assignee, status, and command. A '+ Add task' button is in the top right of the tasks section.

Project: WebGoat (test project)

Web server pentest project

Details Targets **Tasks** Vulnerabilities Notes Attachments

Tasks (1/4 completed) + Add task

Summary	Description	Assignee	Status	Command		
Nessus		(nobody)	Done	nessus	Edit	Delete
Run port scanner	Use nmap to detect all open ports	Lead pentester	Doing	nmap	Edit	Delete
Run SQL injection scanner	Use sqlmap to test the application for SQL injecti...	(nobody)	Todo	sqlmap	Edit	Delete
Check domain expiration date	Use whois or other tools to check when the doma...	(nobody)	Todo	whois	Edit	Delete

Step 3: Complete tasks and commands

Command

Nmap

network

DetailsRun instructionsTerminal

Instructions

1. Fill in the arguments

Host

scanme.nmap.org

2. Executermapon any terminal

Make sure you have a copy of **nmap** on a machine you trust. Download the CLI for MacOS/Linux and Windows from [Github](#).

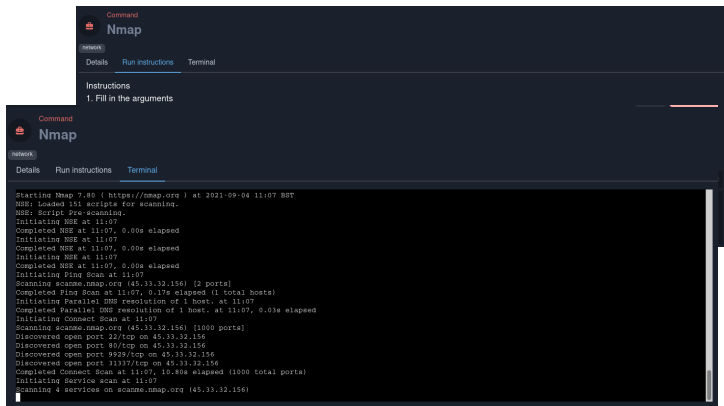
Once **nmap** is within reach execute the command shown below.

```
$ ./nmap command run -cld 2 -var Host=scanme.nmap.org
```

How does it work?

Reconmap will invoke the command **Nmap** from a **instrumentisto:nmap** container using the arguments `-v {{{Host|scanme.nmap.org}}}` `-oX nmap-output.xml` and upload the results to this server for analysis.

Step 3: Complete tasks and commands



The image shows two overlapping windows from the Nmap application. The top window displays the 'Instructions' tab, which contains the text: '1. Fill in the arguments'. The bottom window displays the 'Terminal' tab, showing the output of an Nmap scan. The terminal text is as follows:

```
Starting Nmap 7.80 ( https://nmap.org ) at 2021-09-04 11:07 BST
NSE: Loaded 151 scripts for scanning.
NSE: Script Pre-scanning.
Initiating NSE at 11:07
Completed NSE at 11:07, 0.00s elapsed
Initiating NSE at 11:07
Completed NSE at 11:07, 0.00s elapsed
Initiating NSE at 11:07
Completed NSE at 11:07, 0.00s elapsed
Initiating Ping Scan at 11:07
Scanning scanme.nmap.org (45.33.32.156) [2 ports]
Completed Ping Scan at 11:07, 0.17s elapsed (1 total hosts)
Initiating Parallel DNS resolution of 1 host. at 11:07
Completed Parallel DNS resolution of 1 host. at 11:07, 0.03s elapsed
Initiating Connect Scan at 11:07
Scanning scanme.nmap.org (45.33.32.156) [1000 ports]
Discovered open port 22/tcp on 45.33.32.156
Discovered open port 80/tcp on 45.33.32.156
Discovered open port 9929/tcp on 45.33.32.156
Discovered open port 31337/tcp on 45.33.32.156
Completed Connect Scan at 11:07, 10.80s elapsed (1000 total ports)
Initiating Service scan at 11:07
Scanning 4 services on scanme.nmap.org (45.33.32.156)
```

Step 4: Exploit vulnerabilities



Step 4: Exploit vulnerabilities

The screenshot displays the Nessus interface for a specific vulnerability. The breadcrumb navigation shows the path: **Vulnerabilities**. The vulnerability title is **A DCE/RPC service is running on the remote host**, with a red flag icon and the source identified as **nessus**. Below the title are tabs for **Description**, **Remediation**, **Notes**, and **Attachments**. The **Description** tab is active, showing a detailed explanation of the vulnerability: "By sending a Lookup request to the portmapper (TCP 135 or epmapper PIPE) it was possible to enumerate the Distributed Computing Environment (DCE) services running on the remote port. Using this information it is possible to connect and bind to each service by sending an RPC request to the remote port/pipe." Below the description are sections for **Proof of concept**, **Impact**, and **Category**, all of which are currently empty. On the right side, there is an **Edit** button and a **Delete** button. A dropdown menu is open, showing the current status as **Open (reported)** and a list of other possible statuses: **Open (reported)**, **Open (unresolved)**, **Confirmed (unexploited)**, **Confirmed (exploited)**, **Resolved (remediated)** (which is highlighted), **Resolved (mitigated)**, **Closed (remediated)**, **Closed (mitigated)**, and **Closed (rejected)**. Below the dropdown, the **Related** section is partially visible, showing a project named **qa3app02** as the **Affected target**. The **Created by** field shows **Jane Doe**. At the bottom right, there are navigation icons for back, forward, and search.

Vulnerabilities

Vulnerability

A DCE/RPC service is running on the remote host

nessus

Description Remediation Notes Attachments

Description

By sending a Lookup request to the portmapper (TCP 135 or epmapper PIPE) it was possible to enumerate the Distributed Computing Environment (DCE) services running on the remote port. Using this information it is possible to connect and bind to each service by sending an RPC request to the remote port/pipe.

Proof of concept

(empty)

Impact

(empty)

Category

-

Edit **Delete**

Transition to

- Open (reported)
- Open (unresolved)
- Confirmed (unexploited)
- Confirmed (exploited)
- Resolved (remediated)**
- Resolved (mitigated)
- Closed (remediated)
- Closed (mitigated)
- Closed (rejected)

Related

Project

qa3app02


Affected target

Created by

Jane Doe

Step 5: Generate pentest report

Project reporting

Project report

Preview

Revisions

Configuration

- A remote source has been responsive during the scan, and the remote network cannot be reached anymore by the scanner.
- This scanner may have been blacklisted by the system administrator or by an automatic intrusion detection / prevention system that detected the scan.
- The remote host is now down, either because a user turned it off during the scan or because a select denial of service was effective.

In any case, the audit of the remote host might be incomplete and may need to be done again.

Signing is disabled on the remote SMB server.

Solution

Enforce message signing in the host's configuration. On Windows, this is found in the Local Security Policy. On Samba, the setting is called 'server signing'. See the 'see also' links for further details.

Severity	Medium
Category	(undefined)
CVSS score	5.0

Signing is disabled on the remote SMB server. This can allow man-in-the-middle attacks against the SMB server.

Step 5: Generate pentest report

Project reporting

Project report

PreviewRevisionsConfiguration

- A remote source has been responsive during the scan, and the remote network cannot be reached anymore by the scanner.
- This scanner may have been blacklisted by the system administrator or by an automatic intrusion detection / prevention system that detected the scan.
- The remote host is now down, either because a user turned it off during the scan or because a select denial of service was effective.

In any case, the audit of the remote host might be incomplete and may need to be done again

Signing is disabled on the remote SMB server.

Solution

Project reporting

Project report

PreviewRevisionsConfiguration

New report version

Name

ng 1.0 (201701)

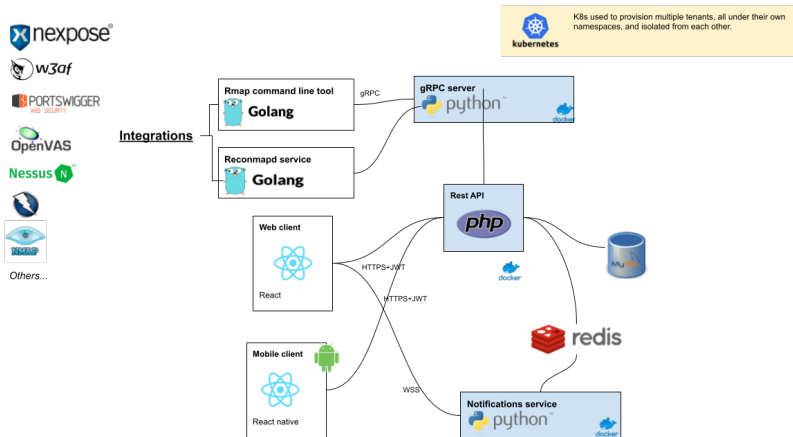
Description

ng initial version, bug

Save version

Name (Description)	Datetime	Report versions		Send by email	Delete
		Downloads			
1.2 (reviewed Report reviewed and sent to the client)	1 week ago	HTMLPDF		Send by email	Delete
1.1 (initial version after corrections)	2 weeks ago	HTMLPDF		Send by email	Delete
1.0 (initial version)	3 weeks ago	HTMLPDF		Send by email	Delete

Architecture



Coming features

- ▶ Complex workflows (reviewers)
- ▶ Independent customer's portal
- ▶ Secret management
- ▶ More integrations

How to get started?

Manual setup

Follow [setup instructions](#)

Easy to install, more difficult to maintain

Community support (chat)

SaaS

[Affordable hosting](#)

Ready in minutes

Technical support (phone, email, chat)

Always latest version



- ▶ <https://github.com/reconmap>
- ▶ <https://twitter.com/reconmap>
- ▶ <https://facebook.com/reconmap>
- ▶ Gitter chat

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- ▶ <https://www.pentesteracademy.com>
- ▶ <https://twitter.com/DamianGoh13>