TECHNICAL SPECIFICATIONS

The information in this document applies to **version 7.0.11** of Syhunt Hybrid.

This document presents the technical specifications of Syhunt Hybrid, an augmented HAST (*Hybrid Application Security Testing*), DAST (*Dynamic Application Security Testing*), SAST (*Static Application Security Testing*), MAST (*Mobile Application Security Testing*) and DWET (*Dark Web Exposure Testing*) tool of high accuracy, depth and coverage that identifies vulnerabilities and weaknesses in applications, and data leaks related Internet domains.

A. LICENSE RIGHTS

- Syhunt Hybrid software licenses usually have a **term of validity of 12 months**.
- The licenses include version update and technical support rights, in addition to providing technical documentation in English in PDF and HTML formats.
- The licenses allow an unlimited number of scans against an unlimited number of Assets per year, which must be launched from a single device or (if additional seats are ordered) more Customer devices. Each license include two web interface users - an admin and a secondary user. Additional users can be purchased if needed, expanding the number of users.
- The licenses allow the integration of the tool with AI (Artificial Intelligence) through the configuration of an API key, which for data control and privacy reasons, must be received and purchased separately and directly from an AI supplier supported by the tool. Syhunt currently only supports OpenAI.

B. ARCHITECTURE

Syhunt Hybrid is an application security assesment software tool, which is hybrid, on-premise, modular, asynchronous and multi-process:

- It is hybrid, that is, it combines different analysis techniques, such as DAST, OAST, SAST, MAST, FAST and DWET (detailed below).
- It is on-premise, that is, the solution is deployed on the Customer's premises, so that the analyzed source code and analysis results do not leave its internal network.
- It is modular with a single management console that aggregates the configuration management features of its modules and analysis results presentation features.
- It is asynchronous, that is, the solution works with several scans simultaneously, without the need of waiting for the end of each analysis.

- It is multi-tabbed and multi-process, that is, each browser tab or scan is a different process in the operating system.
- It comes with a web interface and a command line interface (CLI) that allows the launching of dynamic and source code scans and other tasks.

SUPPORTED TYPES OF ANALYSIS

Syhunt Hybrid performs the following types of analysis:

SAST	Static analysis of the security of a web application's source code
MAST	Static analysis of the security of a mobile application's source code (Android & iOS) and Android APK file
DAST	Dynamic analysis of the security of a web application security with deep crawling and parameter injection
OAST	Augmented dynamic analysis of the security of a web application security with out-of-band (OOB) techniques
HAST	Hybrid-Augmented analysis of the security of web applications, on which the results of the static analysis are automatically used to enhance its augmented dynamic analysis
DWET	Surface to dark web exposure scoring of Internet domains
FAST	Forensic analysis of the security of a web application through the analysis of web server log files

VULNERABILITY DATABASE

Syhunt currently comes with an internal vulnerability database that contemplates the sets of publicly available vulnerabilities and regulations listed in the table below. The tool's vulnerability database is updated periodically, ensuring that the solution is always up-to-date with new vulnerabilities published by international vulnerability databases.

CWE/SANS Top 25 2023	Most Dangerous Software Errors: 2023 version or later
OWASP Top 10 2021	Top 10 Web Application Security Risks: 2021 version or later
OWASP Mobile Top 10	Mobile Top 10 Risks: 2016 version or later (PLUS)

OWASP PHP Top 5	
CWE	Common Weakness Enumeration
CVE	Common Vulnerabilities and Exposures
ISO/IEC 27001	
WASC	The Web Application Security Consortium Threat Classification
WAVSEP	Web Application Vulnerability Scanner Evaluation Project
NIST SAMATE	Software Assurance Metrics And Tool Evaluation Project
PCI DSS	Payment Card Industry Data Security Standard: version 3.2, 3.2.1 or later

INTEGRATIONS

Syhunt Hybrid comes with features for integration with the following systems and software:

Ticket Management / Issue Tracking	JIRA: 7.13.0 or later GitHub GitLab
Version Control	Public and private GIT repositories Azure DevOps and TFS repositories (TFVC & GIT) GitHub and GitLab Branches
</> **APIs & Scripting**	Lua 5.1 API Web API (REST) PowerShell JSON and XML
Security Dashboards	OWASP DefectDojo GitLab Security Dashboard

Application Vulnerability Management	BIG-IP Application Security Manager (ASM) Imperva SecureSphere ModSecurity CRS OGASEC WAF
Development Process Control	GitHub Actions, GitLab CI and Security Dashboard Jenkins Pipeline
Web Browsers	Syhunt Sandcat (Built-In) Google Chrome Mozilla Firefox
Email	SMTP

The examples below show how to perform the analysis of a GIT repository through the various available integration options:

```
-- from the command prompt
scancode git://sub.domain.com/repo.git
scancode https://github.com/user/repo.git -rb:master
scancode https://dev.azure.com/user/projectname

-- from GitLab CI Script
- Start-CodeScan -pfcond 'fail-if:risk=mediumup' -output 'report.pdf' -outputex 'gl-sast-report.json'

-- from GitHub Actions Script
- Start-CodeScan -pfcond 'fail-if:risk=mediumup' -output 'report.pdf'

-- from Jenkins pipeline script
syhunt.scanCode([target: 'https://github.com/someuser/somerepo.git', branch: 'master', pfcond: 'fail-if:risk=mediumup'])

-- from PowerShell
$MyScan = @{
  target = 'https://github.com/someuser/somerepo.git';
  branch = 'master';
  pfcond = 'fail-if:risk=mediumup';
  output = 'report.pdf'
}
- Start-CodeScan @MyScan

-- from Lua script
code:scanurl('https://github.com/someuser/somerepo.git', 'master')

-- from Web API (REST, raw JSON)
-- POST /syhunt/launch.lua
{
  sourcetarget: "https://github.com/someuser/somerepo.git",
  sourcebranch: "master",
  apikey: "YOUR_API_KEY"
}
```

SUPPORTED LANGUAGES & ENVIRONMENTS

Syhunt Hybrid identifies vulnerabilities in applications with the following languages, environments and frameworks:

Language	Environment / Framework
C#	ASP.Net

Java	JEE JSP Android Spring Framework
JavaScript	Client-Side Server-Side Node.js (Barebone, Express.js & Koa.js) Angular (version 2 or higher) AngularJS JScript (ASP Classic) ElectronJS (Desktop)
Kotlin	Ktor
Lua	ngx_lua mod_lua CGILua Lua Pages
Objective-C, C & C++	iOS
Object Pascal	Delphi Delphi XE Lazarus DWS
Perl	
PHP	
Python	CGI mod_python PSP WSGI Django
Ruby	Rails ERB mod_ruby
Swift	iOS

TypeScript	
VB	VB.Net (ASP.Net) VBScript (ASP Classic)

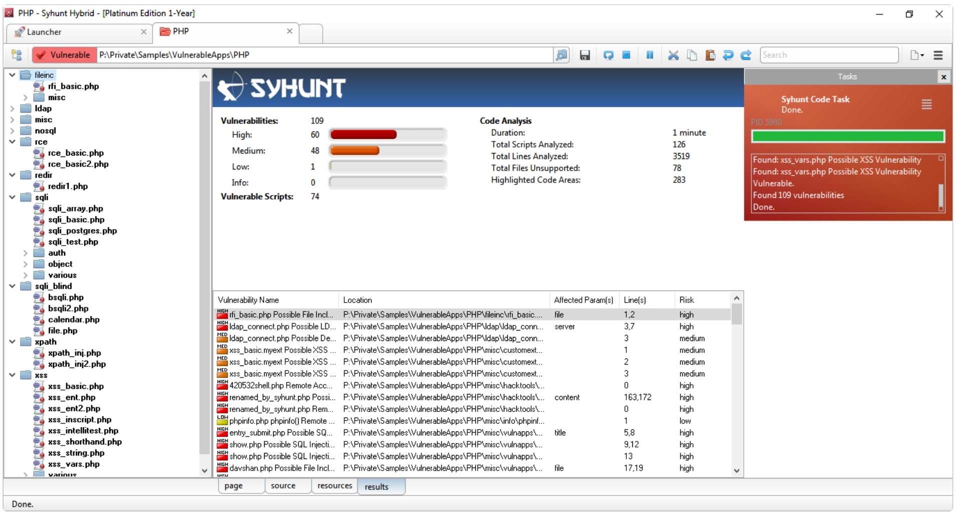
C. SOURCE CODE ANALYSIS

Module Name	Syhunt Code; Syhunt Mobile
Description	Analyzes the source code of web and mobile applications for security vulnerabilities
Type of Analysis	SAST (Static Application Security Testing) MAST (Mobile Application Security Testing)
Target Applications	Web Applications (including *Web Services*) Mobile Applications (Android & iOS) Desktop Applications
Target Languages & Platforms	APK (Android) ASP.Net & ASP Classic HTML Java (including Android) JavaScript Kotlin (including Android) Lua Objective-C, C & C++ (iOS) Object Pascal (Delphi) Perl PHP Python Ruby Swift (iOS) TypeScript
Vulnerabilities Detected	1300+

Vulnerability Categories Covered	40+
GIT Integration	Yes

- It comes with known application vulnerabilities in all programming languages and environments supported by the module.
- Supports code embedded in HTML, print shorthands and string interpolation.
- Identifies client-side and server-side vulnerabilities.
- Identifies the use of outdated vulnerable scripts, local or remote, such as vulnerable versions of AngularJS, jQuery, fullPage, Bootstrap and momentjs.
- Performs vulnerability analysis on complete source codes, code snippets and configuration files.
- Performs incremental analysis, on which key results and data from scans against a specific codebase are automatically stored and used to speed up future scans.
- Supports multi-auditing of several programming languages in the same scan session.
- Supports TypeScript, allowing it to detect vulnerabilities before the code is compiled to JavaScript (Client and Server-Side, Node.js & Angular).
- Identifies and allows to navigate through key areas of code, such as specific HTML markers, JavaScript, XHR requests, entry points and interesting keywords.
- Identifies vulnerabilities in poorly designed code, that is, programming errors that expose the system to attack risks.
- Analyzes configuration files to assess security threats and identify appropriate countermeasures at the stage of server, environment or application configuration.
- Recognizes cases of input filtering and validation, providing accurate and false-positive free results.
- Includes AI-Powered feature that adds to reports examples of fixed code along with each vulnerable code identified during the scan.

SYHUNT CODE USER INTERFACE



Vulnerabilities: 109
High: 60
Medium: 48
Low: 1
Info: 0
Vulnerable Scripts: 74

Code Analysis
Duration: 1 minute
Total Scripts Analyzed: 126
Total Lines Analyzed: 3519
Total Files Unsupported: 78
Highlighted Code Areas: 283

Syhunt Code Task
Done.
PID 5980

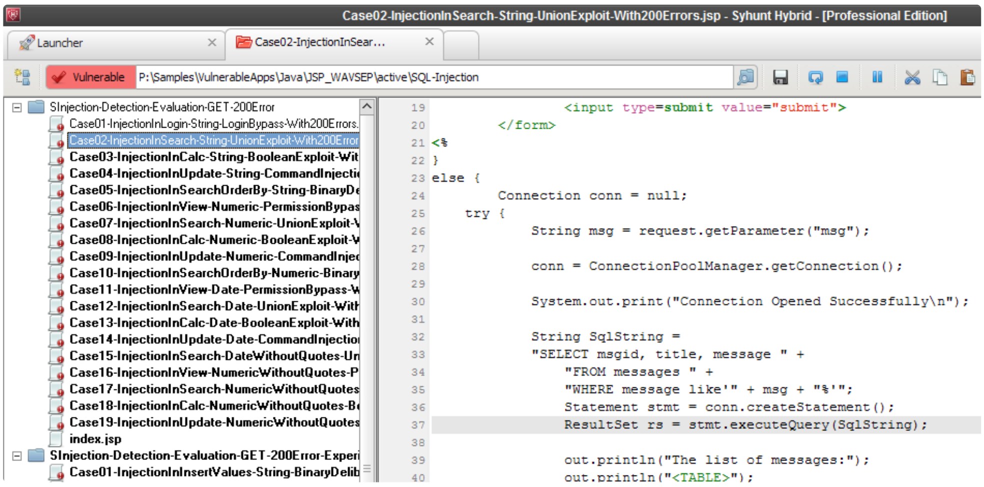
```
Found: xss_vars.php Possible XSS Vulnerability
Found: xss_vars.php Possible XSS Vulnerability
Vulnerable.
Found 109 vulnerabilities
Done.
```

Vulnerability Name	Location	Affected Param(s)	Line(s)	Risk
HIGH rfi_basic.php Possible File Incl...	P:\Private\Samples\VulnerableApps\PHP\fileinc\rfi_basic....	file	1,2	high
HIGH ldap_connect.php Possible LD...	P:\Private\Samples\VulnerableApps\PHP\ldap\ldap_conn...	server	3,7	high
MED ldap_connect.php Possible De...	P:\Private\Samples\VulnerableApps\PHP\ldap\ldap_conn...		3	medium
MED xss_basic.myext Possible XSS ...	P:\Private\Samples\VulnerableApps\PHP\misc\customext...		1	medium
MED xss_basic.myext Possible XSS ...	P:\Private\Samples\VulnerableApps\PHP\misc\customext...		2	medium
MED xss_basic.myext Possible XSS ...	P:\Private\Samples\VulnerableApps\PHP\misc\customext...		3	medium
HIGH 420532shell.php Remote Acc...	P:\Private\Samples\VulnerableApps\PHP\misc\hacktools\...		0	high
HIGH renamed_by_syhunt.php Possi...	P:\Private\Samples\VulnerableApps\PHP\misc\hacktools\...	content	163,172	high
HIGH renamed_by_syhunt.php Rem...	P:\Private\Samples\VulnerableApps\PHP\misc\hacktools\...		0	high
LOW phpinfo.php phpinfo() Remote ...	P:\Private\Samples\VulnerableApps\PHP\misc\info\phpinf...		1	low
HIGH entry_submit.php Possible SQ...	P:\Private\Samples\VulnerableApps\PHP\misc\vulnapps\...	title	5,8	high
HIGH show.php Possible SQL Injecti...	P:\Private\Samples\VulnerableApps\PHP\misc\vulnapps\...		9,12	high
HIGH show.php Possible SQL Injecti...	P:\Private\Samples\VulnerableApps\PHP\misc\vulnapps\...		13	high
HIGH davshan.php Possible File Incl...	P:\Private\Samples\VulnerableApps\PHP\misc\vulnapps\...	file	17,19	high

Done.

The Syhunt Code's user interface allows real-time viewing of the status of running scans, including:

1. Tree of analyzed and vulnerable files;
2. Scan duration;
3. Total scripts analyzed and vulnerable;
4. Total vulnerabilities found and by severity level;
5. Total lines analyzed;
6. List of vulnerabilities found.


Case02-InjectionInSearch-String-UnionExploit-With200Errors.jsp - Syhunt Hybrid - [Professional Edition]
Launcher
Case02-InjectionInSear...
Vulnerable

P:\Samples\VulnerableApps\Java\JSP_WAVSEP\active\SQL-Injection

```
SInjection-Detection-Evaluation-GET-200Error
    Case01-InjectionInLogin-String-LoginBypass-With200Errors.
    Case02-InjectionInSearch-String-UnionExploit-With200Error
    Case03-InjectionInCalc-String-BooleanExploit-Wit
    Case04-InjectionInUpdate-String-CommandInjecti
    Case05-InjectionInSearchOrderBy-String-BinaryDe
    Case06-InjectionInView-Numeric-PermissionBypas
    Case07-InjectionInSearch-Numeric-UnionExploit-V
    Case08-InjectionInCalc-Numeric-BooleanExploit-V
    Case09-InjectionInUpdate-Numeric-CommandInjec
    Case10-InjectionInSearchOrderBy-Numeric-Binary
    Case11-InjectionInView-Date-PermissionBypass-W
    Case12-InjectionInSearch-Date-UnionExploit-With
    Case13-InjectionInCalc-Date-BooleanExploit-With
    Case14-InjectionInUpdate-Date-CommandInjectio
    Case15-InjectionInSearch-DateWithoutQuotes-Un
    Case16-InjectionInView-NumericWithoutQuotes-P
    Case17-InjectionInSearch-NumericWithoutQuotes
    Case18-InjectionInCalc-NumericWithoutQuotes-B
    Case19-InjectionInUpdate-NumericWithoutQuotes
    index.jsp
SInjection-Detection-Evaluation-GET-200Error-Experi
    Case01-InjectionInInsertValues-String-BinaryDelib
```

```
                <input type=submit value="submit">
        </form>
<%
}
else {
        Connection conn = null;
    try {
            String msg = request.getParameter("msg");

            conn = ConnectionPoolManager.getConnection();

            System.out.print("Connection Opened Successfully\n");

            String SqlString =
            "SELECT msgid, title, message " +
                "FROM messages " +
                "WHERE message like'" + msg + "%'";
                Statement stmt = conn.createStatement();
                ResultSet rs = stmt.executeQuery(SqlString);

                out.println("The list of messages:");
                out.println("<TABLE>");
```

In addition, it identifies and displays points in the source code where it is possible with just one fix, to remediate vulnerabilities found in the application.

C2 MOBILE ANALYSIS

Syhunt Code performs MAST (Mobile Application Security Testing) in Android and iOS applications and Android APK files for pressing OWASP Mobile Top 10 and CWE/SANS Top 25 risks, such as:

Improper Platform Usage

Insecure Data Storage

Insecure Communication

Insecure Authentication

Insufficient Cryptography

Insecure Authorization

Client Code Quality
Code Tampering
Reverse Engineering
Extraneous Functionality

D. DYNAMIC ANALYSIS

Module Name	Syhunt Dynamic Augmented
Description	Detects security vulnerabilities in dynamic web applications and web servers
Type of Analysis	DAST (Dynamic Application Security Testing) OAST (Out-of-Band Application Security Testing)
Target Applications	Web Applications & Web Servers
Target Languages & Platforms	ASP.Net & ASP Classic HTML & JavaScript Java Lua Perl PHP Python Ruby
Optimized Analysis for HTTP Servers	Apache Apache Tomcat Microsoft IIS Nginx
Vulnerabilities Detected	7000+
Vulnerability Categories Covered	68+
Injection Checks	570+

Supported Protocols	HTTP version 1.0 & 1.1 HTTPS (SSL 2/SSL 3/TLS 1/TLS 1.3) IPv6 Proxy (HTTP, Socks 4 & Socks 5)
Supported HTTP Methods	Keep-Alive GZIP Compression Authentication: Basic, Bearer, MD5/SHA256/SHA512, Form-Based & NTLM*

*NTLM / Kerberos: NTLM support only available for Microsoft Windows. Kerberos support is planned.

- It comes with known web application vulnerabilities in the programming languages and environments supported by the module.
- Performs augmented dynamic analysis, a combination of DAST and OAST test methods.
- Performs hybrid-augmented analysis, a combination of DAST, OAST and SAST test methods.
- Performs incremental analysis, on which key results and data from scans against a specific target URL are automatically stored and used to speed up future scans.
- Performs AI-powered form authentication, automatically detecting how to login with provided credentials and instructions, caching a successful login procedure to be used in future scans.
- Automatically indicates in reports when an authenticated session was maintained from the start to the end of an authenticated scan.
- Identifies the use of outdated vulnerable scripts, server software and other components.
- Identifies client-side and server-side vulnerabilities.
- Identifies in-band, inferential and out-of-band (OOB) vulnerabilities.
- Identifies known, vulnerable applications in all programming languages supported by the solution, including ColdFusion, Flash & Server Side Includes (SSI).
- Automatically performs structural, login form and HTTP authentication brute-force attacks.
- Automatically detects logout pages within the target web application, preventing accidental logout during a scan, with optional manual configuration option.
- It comes with invasive and non-invasive scanning capability.
- Allows to turn off denial of service (DoS) tests that may affect the availability of the web application.
- Allows to configure the number of retries and timeout used to connect to the web application.
- Supports analysis of applications built on top of content management systems, such as Drupal, Joomla, WII and WordPress.
- Supports analysis of SPAs (Single Page Applications).
- Supports Selenium scripting (Python-based) in authentication phase.
- Identifies the technologies used in the application and optimizes the scanning time based on the detected technologies.
- Identifies the hidden versions of server software and components (Hunter-Sense™), such as Apache,

Nginx, PHP, mod_ssl, OpenSSL and Phusion Passenger.

- Performs data injection and manipulates parameters in the target application in URLs and forms (both GET and POST).
- Performs injection mutations, in order to cover all programming languages and target platforms supported by the solution.
- Performs time-based injection checks with a 0% false-positive rate. This applies to Code Injection, Expression Language Injection, NoSQL Injection, Remote Command Execution and SQL Injection checks.
- Identifies vulnerabilities such as SQL injection,NoSQL injection, OS Command Injection, exposure and code injection through techniques such as inferential (response time), in-band (error message or print), out-of-band (OOB) and Passive Analysis.

BROWSING AND CRAWLING CAPABILITIES

Syhunt Hybrid maps the structure, including all links and entry points of the target application, while emulating a modern browser with support for the following standards, features and Web 2.0 technologies:

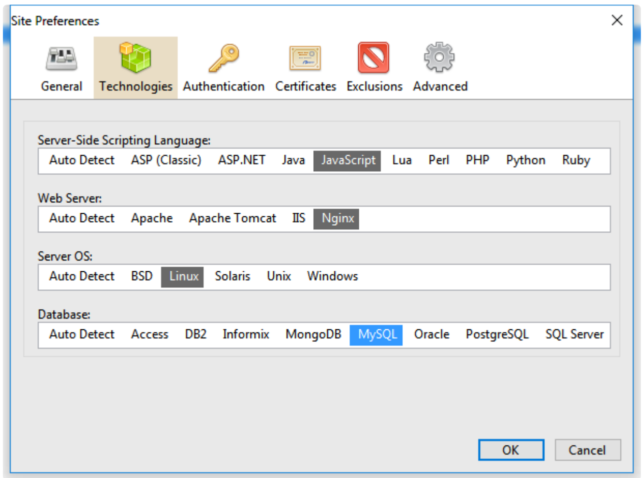
Latest Web Standards	HTML 5 CSS 3
Intelligent HTML Analysis	Relative Paths Standard HTML Non-standard or deformed HTML Form Recognition
Browser Emulation	Google Chrome Mozilla Firefox Microsoft Edge Referer Submission
JavaScript Support	JavaScript analysis and execution DOM Emulation Browser Behavior XHR (XMLHttpRequest) Calls / AJAX Support for external JavaScript files
User Interaction Simulation	Key press Mouse clicks Autofill forms Automatic login Accidental logout prevention

Cookies Support	Cookie management Session management
Follow Redirects	HTTP Meta refresh JavaScript
Process Isolation	Each browser or scan tab is a different process in the system
Robots.txt File Analysis	If the file is available

Syhunt intelligently handles large, complex websites with dynamic content generation and includes mechanisms to prevent loop situations during application mapping. In addition, it allows to limit the depth of scans, including:

- Maximum number of links per server and links per page
- Maximum URL size in bytes and HTTP response in kilobytes

SITE PREFERENCES



Server-Side Scripting Language: Auto Detect ASP (Classic) ASP.NET Java JavaScript Lua Perl PHP Python Ruby

Web Server: Auto Detect Apache Apache Tomcat IIS Nginx

Server OS: Auto Detect BSD Linux Solaris Unix Windows

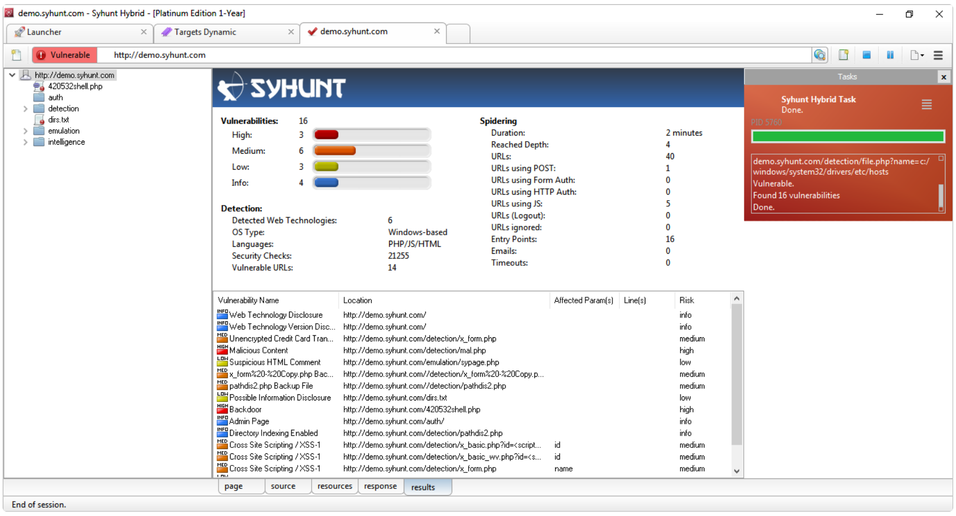
Database: Auto Detect Access DB2 Informix MongoDB MySQL Oracle PostgreSQL SQL Server

Syhunt Dynamic allows the creation of scan profiles for Assets, which specify:

- Technologies used by the application in order to optimize the scanning time, such as the server-side language, the web server, the operating system and the database of the target application;
- Start URLs;
- SSL certificates and credentials for authentication allowing to perform the analysis logged in the target system (basic and web form-based);
- Exclusion of objects from scanning, such as specific paths, forms and vulnerabilities;
- Depth and layer limitation

- Signatures for detecting custom 404 error pages;
- Manual configuration of cookies and session token.

SYHUNT DYNAMIC USER INTERFACE



Syhunt Hybrid Task
Done.
PID 5760
demo.syhunt.com/detection/file.php?name=c:/windows/system32/drivers/etc/hosts
Vulnerable.
Found 16 vulnerabilities
Done.

Vulnerabilities:	16
High:	3
Medium:	6
Low:	3
Info:	4

Detection:

Detected Web Technologies:	6
OS Type:	Windows-based
Languages:	PHP/JS/HTML
Security Checks:	21255
Vulnerable URLs:	14

Spidering

Duration:	2 minutes
Reached Depth:	4
URLs:	40
URLs using POST:	1
URLs using Form Auth:	0
URLs using HTTP Auth:	0
URLs using JS:	5
URLs (Logout):	0
URLs ignored:	0
Entry Points:	16
Emails:	0
Timeouts:	0

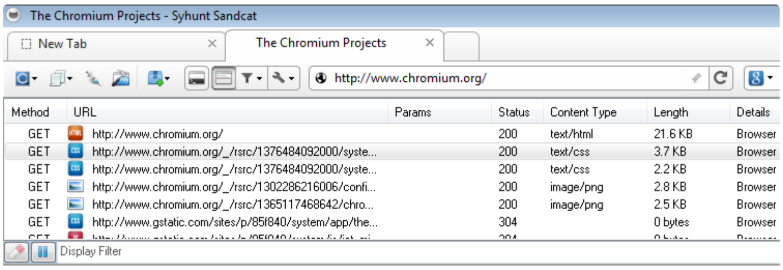
Vulnerability Name	Location	Affected Param(s)	Line(s)	Risk
INFO Web Technology Disclosure	http://demo.syhunt.com/			info
INFO Web Technology Version Disc...	http://demo.syhunt.com/			info
MED Unencrypted Credit Card Tran...	http://demo.syhunt.com/detection/x_form.php			medium
HIGH Malicious Content	http://demo.syhunt.com/detection/mal.php			high
LOW Suspicious HTML Comment	http://demo.syhunt.com/emulation/sypage.php			low
MED x_form%20-%20Copy.php Bac...	http://demo.syhunt.com//detection/x_form%20-%20Copy.p...			medium
MED pathdis2.php Backup File	http://demo.syhunt.com//detection/pathdis2.php			medium
LOW Possible Information Disclosure	http://demo.syhunt.com/dirs.txt			low
HIGH Backdoor	http://demo.syhunt.com/420532shell.php			high
INFO Admin Page	http://demo.syhunt.com/auth/			info
INFO Directory Indexing Enabled	http://demo.syhunt.com/detection/pathdis2.php			info
MED Cross Site Scripting / XSS-1	http://demo.syhunt.com/detection/x_basic.php?id=<script...	id		medium
MED Cross Site Scripting / XSS-1	http://demo.syhunt.com/detection/x_basic_wv.php?id=<s...	id		medium
MED Cross Site Scripting / XSS-1	http://demo.syhunt.com/detection/x_form.php	name		medium

End of session.

The Syhunt Dynamic's user interface allows real-time viewing of the status of running scans, including:

- Site tree of found and vulnerable paths (sitemap and web site structure);
- Scan duration;
- Total vulnerable URLs;
- Total URLs using POST, authentication and JavaScript;
- Total entry points;
- Total timeouts;
- Total vulnerabilities found and by severity level;
- Total security checks performed;
- Detected web technologies;
- Target operating system type;
- Target programming languages;
- Depth Reached;
- List of vulnerabilities found.

BUILT-IN WEB BROWSER



Method	URL	Params	Status	Content Type	Length	Details
GET	http://www.chromium.org/		200	text/html	21.6 KB	Browser
GET	http://www.chromium.org/_/rsrc/1376484092000/syste...		200	text/css	3.7 KB	Browser
GET	http://www.chromium.org/_/rsrc/1376484092000/syste...		200	text/css	2.2 KB	Browser
GET	http://www.chromium.org/_/rsrc/1302286216006/confi...		200	image/png	2.8 KB	Browser
GET	http://www.chromium.org/_/rsrc/1365117468642/chro...		200	image/png	2.5 KB	Browser
GET	http://www.gstatic.com/sites/p/85f840/system/app/the...		304		0 bytes	Browser

Syhunt Dynamic incorporates its own modern browser, known as Syhunt Sandcat, with vulnerability analysis extensions and features for manual testing and support for automated testing, such as:

- Manual login to web applications
- Perform scan after authenticating using CAPTCHA, tokens and other two factor authentication mechanisms
- Perform scan after manual crawl / navigation
- Capture URLs and entry points
- Live HTTP headers
- Preview capability for the most common web file formats, such as CSS, Flash, HTML, common image formats (bmp, gif, ico, jpg, png and svg), JavaScript, JSON, text and XML
- Automatic JavaScript deobfuscation
- Request replay capability
- Fuzzer
- Script executor
- HTTP and XHR editors and request loader.

D2. AUGMENTED ANALYSIS

Module Name	Syhunt Signal
Description	Detects out-of-band security vulnerabilities in dynamic web applications
Type of Analysis	OAST (Out-of-Band Application Security Testing)
Target Applications	Web Applications

Syhunt Dynamic Augmented integrates with the online Syhunt Signal service to perform automated OAST (Out-of-Band Application Security Testing):

- Allows the scanner to detect otherwise invisible, high-risk out-of-band (OOB) vulnerability variants
- Listens to forced requests coming in from a vulnerable target web server over the course of a scan and signals back to the scanner.
- Automatically correlates the received alerts with attack requests it launched.
- Adds the identified OOB vulnerabilities to its report and user interface.
- Returns zero false positives.
- Automatically exfiltrates data from a vulnerable target, which gets added to the scan results, using different commands and techniques (environment and OS-specific).
- Needs an active Internet connection to work.

The following out-of-band vulnerability types are detected by Syhunt Signal:

Command Execution
Remote File Inclusion (RFI)
Server-Side Request Forgery (SSRF)
SQL Injection
XML External Entity (XXE) Injection

D3. HYBRID-AUGMENTED ANALYSIS

Syhunt Hybrid combines the results of Syhunt Dynamic, Syhunt Signal and Syhunt Code to perform Hybrid-Augmented Analysis, AKA augmented HAST (Hybrid Application Security Testing), on which the results of the static analysis are automatically used to enhance its augmented dynamic analysis:

- Combines SAST, DAST & OAST test methods.
- Performs hybrid client-side JavaScript code analysis (SAST-in-DAST).
- Dynamically detects and confirms vulnerabilities by simulating inferential, in-band and out-of-band (OOB) attacks and by using entry point and other information acquired through source code analysis.

D4. DARK WEB EXPOSURE SCORING

Module Name	Syhunt Breach
Description	Performs scored analysis of breaches affecting domains
Type of Analysis	DWET (Dark Web Exposure Testing)
Domains Covered	58 million+

Syhunt Breach informs about data leaks on the surface, deep and dark layers of the web, including file and credential exposures, and allows to view and compare the privacy and security score of Internet domains based on their track record and testing results. Syhunt Breach is s designed not to offer direct access to specific breach contents. Instead, it focuses on dynamically analyzing and mapping third-party risk.

- Informs about breach incidents of authorized Internet domains, such as leaked passwords, surface to dark web file and database leaks, and past breaches.

- Informs about the privacy score of authorized Internet domains based on identified leaks and public incident records.
- Uses regularly updated leak databases generated by artificial intelligence (AI) enabled software combined with human intelligence.
- The databases cover various types of leaks and breaches, including password leaks, surface to dark web file exposures, past security incidents and ransomware group leaks.
- Works on-premise (offline or hybrid mode)
- The databases cover over 5 billion password leaks globally.
- The databases cover over 58 million domain related leaks.
- The databases cover leaks on the surface, deep and dark layers of the web.
- The databases cover over 20.000 breach situations.
- The databases cover the 30 most dangerous and active ransomware group leaks.

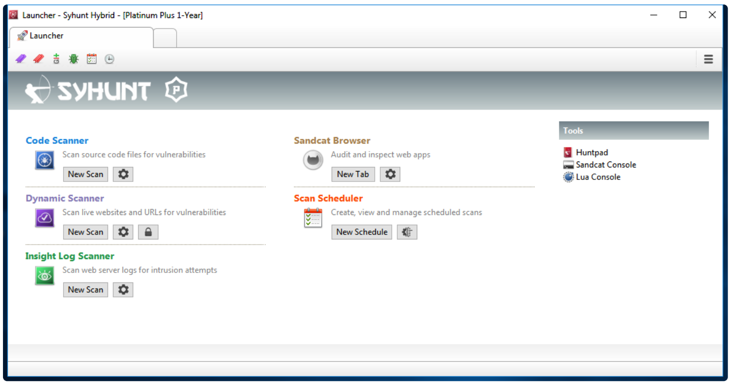
D5. FORENSIC LOG ANALYSIS

Module Name	Syhunt Forensic
Description	Detects security attacks in dynamic web applications
Type of Analysis	FAST (Forensic Application Security Testing)
Target Applications	Web Applications

Syhunt Forensic performs on-demand security heuristic analysis of web server log files to detect attacks, including:

- Identification of origin (IP address), country, type and methods used to attempt to compromise web applications;
- Reconstruction of the attack session, accurately differentiating legitimate traffic from malicious traffic, in addition to differentiating automated attacks from manual attacks;
- Intrusion detection, with backdoor installation, and used intrusion tools.
- Detection of attempts to exploit OWASP Top 10 vulnerabilities and the use of defense evasion techniques.
- Support for log files generated by Apache, Microsoft IIS and Nginx web servers, with automatic format detection.

E. MANAGEMENT CONSOLE



Launcher - Syhunt Hybrid - [Platinum Plus 1-Year]

Code Scanner

Scan source code files for vulnerabilities

Dynamic Scanner

Scan live websites and URLs for vulnerabilities

Insight Log Scanner

Scan web server logs for intrusion attempts

Sandcat Browser

Audit and inspect web apps

Scan Scheduler

Create, view and manage scheduled scans

Tools

- Huntpad
- Sandcat Console
- Lua Console

The management console aggregates the features for managing module settings and presenting the results of SAST, DAST and FAST scans:

- Allows to access stored results of scans performed or in progress.
- Does not require prior knowledge of information security and secure coding to use the console.
- Requires little or no user intervention before and during the progress of scans.
- Provides a graphical view that indicates the progress of the analysis and the risk level of the analysis being performed.
- Displays software license information, showing the license type, license expiration date, and supported programming languages.
- Allows the user to disable vulnerability detection rules and identify which rules have been disabled.
- Allows the user to configure to ignore specific or multiple vulnerabilities.
- Allows pause, resume and immediate scan cancellation.
- Allows to identify, remove, export and import the results of scans performed.
- Allows to add and manage assets.
- Allows to export and import target lists from files in CSV or list format.
- Allows to export and import the current tool settings to/from a file.
- Allows real-time viewing of the list of vulnerabilities found.
- Allows to generate summary report of scans by scan methodology.
- Allows to list all sessions for a given month.
- Provides syntax highlighting for the programming languages supported by the solution.
- Includes its own notepad for manual testing, including a collection of common injection string generators, hash generators, encoders and decoders, HTML functions and text manipulation.
- Includes an Extension Development Kit (EDK) to allow the addition of new features.

SCHEDULING SCANS

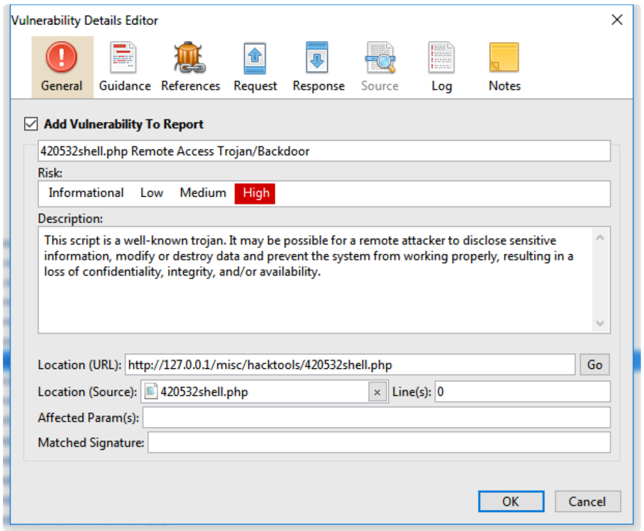
The management console allows to schedule scans with the following fields and options:

- Time, date or day of the week
- Type of Scan: Dynamic or Code
- Scan Target

- Scan time limit
- Report generation with selection of report template
- Sending a report by email after the analysis is finished
- Sending notifications to issue trackers or a security dashboard
- Option to set fail Condition based on minimum severity
- Option to perform a hidden scan (without window)
- Option to export command line to be used in third party schedulers or other tools

VULNERABILITY ALERTS

The management console allows editing and viewing a vulnerability alert, including changing the state, severity, and inserting comments on the vulnerabilities found.



☑ Add Vulnerability To Report

420532shell.php Remote Access Trojan/Backdoor

Risk: Informational Low Medium **High**

Description:

This script is a well-known trojan. It may be possible for a remote attacker to disclose sensitive information, modify or destroy data and prevent the system from working properly, resulting in a loss of confidentiality, integrity, and/or availability.

Location (URL): http://127.0.0.1/misc/hacktools/420532shell.php Go

Location (Source): 420532shell.php Line(s): 0

Affected Param(s):

Matched Signature:

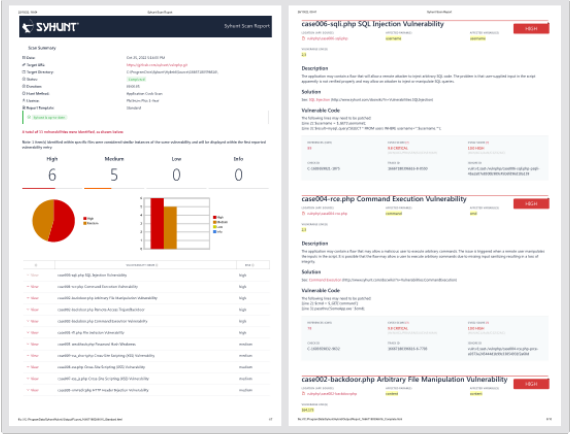
Such alerts contain the following properties:

- Vulnerability name
- Vulnerability description;
- Vulnerability location, which can be a URL or file.
- Reference code for known vulnerability bases, such as CVE, CWE, NVD, OSVDB, if any;
- CVSS score: version 2 and 3;
- Severity level (High, Low, Medium or Informational);
- Unique Syhunt check ID;
- Track ID - an unique vulnerability ID per scan executed by Syhunt;
- Remediation guide;
- The affected parameters and variables;
- Affected line numbers;
- A short extract from the vulnerable source code, when applicable;
- Remediation code examples, when applicable;
- Request, Headers and HTTP Response, in case of dynamic analysis;

- Exfiltrated data (if any);
- User notes

F. SCAN FEATURES

REPORTING AND RESULTS



SYHUNT Syhunt Scan Report

Scan Summary

High	Medium	Low	Info
6	5	0	0

case006-sqli.php SQL Injection Vulnerability HIGH

Description

Solution

Vulnerable Code

case004-rce.php Command Execution Vulnerability HIGH

Description

Solution

Vulnerable Code

case002-backdoor.php Arbitrary File Manipulation Vulnerability HIGH

Syhunt presents the scan results and generates reports on the vulnerabilities found:

- Allows to perform pass/fail testing based on the severity of the vulnerabilities identified.
- Allows the comparison between two scans performed against the same target or source code, presenting the differences through a report and the management console that indicates the differences, such as new, unchanged or removed vulnerabilities.
- Allows to generate reports in the following supported languages: English, German, Spanish, French, Italian, Japanese, Korean and Portuguese, in which vulnerability descriptions and solutions are also translated.
- Allows automatic sending of analysis results to a selected email address.
- Generates alerts for each type of unique vulnerability that is identified.
- Confirms whether an application's security breach has occurred from a trace.
- Supports the CVSS (Common Vulnerability Scoring System) standard version 2.0 and 3.0, to communicate the severity of a vulnerability and help determine the urgency and priority of the security response, including base score and other metrics.
- Generates reports in different formats, including the formats: PDF and HTML (for reading) and XML, JSON and CSV (to be processed by other tools).
- Generates responsive HTML reports optimized for mobile, tablet and desktop sizes.
- Performs automatic grouping of similar instances of vulnerabilities into a single item.
- Sorts vulnerabilities based on CVSS3, CVSS2 (ranging from 0.0 None to 10.0 Critical) or Four Severity Steps (high, low, medium or informational).
- Allows to create custom reports with custom title, logo, notes, footer and multiple templates and sections based on user's selection.

- Allows to generate reports for multiple selected sessions.
- Automaticallly adds the screenshot of authenticated pages to reports.

REPORT TEMPLATES

Syhunt offers the possibility of generating reports using the following templates:

Standard	Standard management report
Comparison	Including the comparison of results of a scan with previous scans, indicating clearly the differences with evaluation graphs and tables
Compliance	Pass / fail report with items from OWASP Top 10, CWE / SANS Top 25 Most Dangerous Software Errors and PCI DSS in their most current versions
Compliance (Mobile)	Pass / fail report with items from OWASP Mobile Top 10, CWE / SANS Top 25 Most Dangerous Software Errors and PCI DSS in their most current versions
Complete	Including comparison of results, compliance and all necessary technical and vulnerability information

The reports generated by the solution come with following information:

- General scan details: start date, target, status, duration and scan method used;
- Graphs and Statistics: consolidated total vulnerabilities and by severity level;
- Vulnerability details: all details about each vulnerability alert, as displayed by the management console;
- Coverage Details: mapped structure, list of forms, emails, JavaScript files and other resources found, as well as technologies and platforms detected during the analysis;
- Version and brief description of the active license.

VULNERABILITY SCANNING METHODS

Syhunt comes with the following pre-defined scanning methods:

Application Scan (Dynamic)	Maps the structure of a website and performs Passive Analysis and Active Attacks
Application Code Scan	Focused on all types of vulnerabilities in source code

Application Scan (Server-Side Focused)	Focused on server-side vulnerabilities only (Dynamic or Code)
Spider Only	Only maps the structure of a website without performing Passive Analysis or attacks
Passive Scan	Only maps the structure of a website with Passive Analysis, but without attacks
Top 25 CWE	Based on the CWE Top 25 Most Dangerous Software Errors list
Top 10 OWASP	Based on the OWASP Top Ten Web Application Security Risks list
Top 5 PHP	Based on OWASP PHP Top 5, but not just limited to PHP
Fault Injection	Focused on data injection flaws, such as XSS, SQL Injection, File Inclusion and Command Execution
Structure Brute-Force	Focused on finding common backup files, administrative pages and similar exposures
Backup Files	Focused on backup, hidden and obsolete files, but not as aggressively as the Structure Brute-Force method
Complete Penetration Test	Performs all dynamic tests in an extensive and time-consuming manner
SQL Injection	Focused on SQL Injection and NoSQL Injection vulnerabilities
XSS	Focused on Cross-Site Scripting (XSS) vulnerabilities and evasion of anti-XSS filters
File Inclusion	Focused on local or remote file inclusion (LFI and RFI) vulnerabilities
Malicious Content	Focused on malware, backdoors, hidden entry points and signs of intrusion
Unvalidated Redirects	Focused on redirect vulnerabilities

SQL INJECTION DETECTION

Syhunt identifies SQL and NoSQL injection vulnerabilities through dynamic analysis, using inferential (time-based), in-band (error-based) and out-of-band (OOB) techniques, as well as through source code analysis. The following databases and techniques are covered:

Database	DAST (Inferential)	DAST (In-Band)	SAST	OAST (OOB)
NoSQL Injection	✓	✓	✓	N/A
MongoDB	✓	✓	✓	N/A
SQL Injection	✓	✓	✓	✓
Firebird/InterBase	N/A	✓	✓	N/A
IBM DB2	N/A	✓	✓	N/A
Informix	N/A	✓	✓	N/A
MariaDB / MySQL	✓	✓	✓	N/A
Microsoft Access	N/A	✓	✓	N/A
Microsoft SQL Server	✓	✓	✓	✓
Oracle	✓	✓	✓	✓
PostgreSQL	✓	✓	✓	N/A
SQLite	✓	✓	✓	N/A
Sybase	✓	✓	✓	N/A

DETECTION OF CODE INJECTION AND CODE DISCLOSURE

Syhunt identifies code injection and exposure vulnerabilities through dynamic analysis, using inferential (time-based) and in-band (print-based and Passive Analysis techniques), through source code analysis. The following languages, environments and techniques are covered:

Language or Environment	DAST (Inferential)	DAST (Disclosure)	DAST (In-Band)	SAST (Injection Flaw)
ASP Classic	✓	✓	✓	✓

ASP.NET	✓	✓	✓	✓
Java	✓	✓	✓	✓
JavaScript	✓	N/A	✓	✓
Lua (Nginx, Apache, CGI-Lua, and so on)	✓	✓	✓	✓
Object Pascal (including DWS)	✓	N/A	✓	✓
Perl	✓	✓	✓	✓
PHP	✓	✓	✓	✓
Python	✓	N/A	✓	✓
Ruby	✓	N/A	✓	✓
Server Side Includes (SSI)	N/A	✓	N/A	N/A

OS COMMAND INJECTION DETECTION

Syhunt identifies OS command injection vulnerabilities through dynamic analysis, using inferential (time-based) and in-band (print-based) and out-of-band (OOB) techniques, as well as through source code analysis. The following OSes are covered:

OS	DAST (Inferential)	DAST (In-Band)	SAST	OAST (OOB)
Unix/Linux	✓	✓	✓	✓
Windows	✓	✓	✓	✓
BSD	✓	✓	✓	✓
Solaris	✓	✓	✓	✓
MacOS	✓	✓	✓	✓
iOS	N/A	N/A	✓	N/A
Android	N/A	N/A	✓	N/A

LIST OF VULNERABILITY CHECKS

Syhunt identifies the following types of vulnerabilities, weaknesses and exposures in web applications, as well as in mobile applications when applicable:

API Abuse & Misuse

Arbitrary File Manipulation

Backdoor (Web-based)

Bad Practices

Broken Authentication

Broken Cryptography

Buffer Overflow

Code Injection, EL (Expression Language) Injection & Regular Expression Injection

Command Execution

Common Backup Files and Folders, and Backup with Common or Double Extension

Common Form Weaknesses, including email form hijacking, hidden price field, auto-complete enabled and unencrypted credit card transaction

Cookie Manipulation

Cross-Site Scripting (XSS), including DOM-based XSS, HTML5 specific, Weak XSS Filter and Cross Frame Scripting (XFS)

Dangerous Methods

Debug Entry Points, including Hidden Debug Parameters

Default Content

Denial-of-Service (DoS): Client and Server-Side

Directory Listing

Directory Traversal
Disclosure of Path, Source Code, Database, Password, Internal IP Address, Web Technology and others
Forgery of Log, Cross Site Request and Server Side Request (SSRF)
Hardcoding or Logging of Sensitive Information
HTTP header injection, HTTP response splitting
Inappropriate or Malicious Content
Inclusion of Local or Remote File
Information Leakage
Injection of LDAP
Injection of JSON, XML, XPath & XXE (XML External Entity)
Injection of NoSQL, SQL & HQL
Injection of SSI (Server-Side Includes)
Insecure Communication
Insecure Cryptographic and Hash Algorithms
Insecure Data Storage: missing or insufficient data protection cases
Insecure Randomness
Insecure Salting
Missing or Weak HTTP Security Headers
Security Misconfiguration
Sensitive Information on Client-Side
Suspicious Comments in Source Code and HTML
Uncontrolled Format String

Unencrypted Login
Unvalidated Redirects
Use of Local Storage, as well as confidential data stored in local storage
Weak Password Hashing
Weak Protocols

G. SYSTEM REQUIREMENTS

Syhunt Hybrid (including its Community Edition) can be installed on 64-bit versions of Windows or Linux, but it is able to analyze applications designed for any target platform, including Android, Apple iOS and macOS, BSD, Linux, Windows, Solaris and Unix, independently of the platform it is executed from.

1. 4GB of available RAM (8GB recommended)
2. 2GB of free disk space*
3. Internet Connection (recommended for code scans and dynamic scans and some features)
4. One of the following compatible 64-bit operating systems:
    1. Windows 10 or 11, or Windows Server 2012 to 2022 (x64 or ARM64). On Windows Server, it is important to ensure that you have the WebView2 Runtime installed. If the WebView2 Runtime is not installed, Syhunt will issue a warning when launching its user interface. You can find it in the Evergreen Standalone Installer.
        1. Make sure you have Edge preloaded on system startup. On Windows 10, Edge preload is already a default system setting. On Windows Server, you have to enabled the Edge preload manually. On Windows 11, our tests showed that disabling the Edge preload would not make any difference.
    2. Ubuntu Server or Desktop 18 or higher
    3. CentOS 7 or 8 (Minimal or Everything)
    4. Any unofficially supported OS**, like a Linux distribution such as the ones listed below, or macOS Big Sur or higher (Intel).
5. (Optional) GIT on Linux/macOS or GIT for Windows (optional for GIT repository scans)
6. Java or Java Headless installed on Linux/macOS
7. If native binary is not available for your specific OS type or distribution yet, Wine64 Stable (3, 4 or 5) is required to be installed.
8. (Optional) Java 8 or higher (optional for Android APK file scan)
9. (Optional) Python 3.7.0 or higher, Selenium module and Chrome browser version 109 or higher (optional for extended scripting capabilities)

0. (Optional) OpenAI API key to enable AI-powered features

* This does not include the space required to save scan session data, which varies depending on the website or source code being analyzed and the scan frequency.

** Unofficially supported OS: means that while the product has been successfully tested and the installation process has been documented, Syhunt does not provide technical support or assistance for issues related to the product's performance on that particular OS. If you choose to use the product with an OS that is not officially supported, you may encounter compatibility issues, errors, or bugs. Therefore, it is always recommended to use a supported OS to ensure optimal performance and compatibility with the product.

COMPATIBLE LINUX DISTRIBUTIONS

Officially Supported:
✓ Ubuntu Server/Desktop 18.10 and later
✓ CentOS 7.7 and later (Minimal or Everything)
Unofficially (Successfully Tested):
✓ Kali Linux 2019 and later
✓ Parrot OS 4.1, 4.7 and later
✓ Debian 9.11 and later
✓ Linux Mint 19.2 and later
✓ OpenSUSE Leap 15.1 and later
✓ Fedora 32
✓ MX Linux 19.1 and later
✓ KDE Neon 2020.03 and later
✓ Deepin 15.9
✓ Manjaro 19
✓ Arch Linux 2019 and later
Unsupported:
⊘ Elementary OS 5.1 (Successfully Tested), 5.0 (Unsupported)
⊘ CentOS 6.1 (Successfully Tested)
⊘ Solus 4.1 (Unstable)

H. GLOSSARY/REFERENCES

1. **Active Attacks**: when a security analysis carries out attacks such as brute force, injection and denial of services.
2. **AI-Powered**: a functionality or functionality extension powered by artificial intelligence that is only available when an integration with a supported third-party AI system, such as OpenAI, has been configured. To enable this type of feature, the user needs to create and specify their own OpenAI API key.

3. **Augmented Dynamic Analysis**: the combination of the DAST and OAST test methods.
4. **Asset**: a URL, source code file or repository that can be analyzed.
5. **DAST**: Dynamic Application Security Testing is when a tool communicates with a web application to identify vulnerabilities and weaknesses in the application. Also known as a black-box test.
6. **DOM**: Document Object Model.
7. **FAST**: Forensic Application Security Testing.
8. **HAST**: Hybrid Application Security Testing is the combination of the SAST and DAST test methods.
9. **Hybrid-Augmented Analysis**: the combination of the SAST, DAST and OAST test methods.
10. **Injection**: when the tool submits data to application's entry points and analyzes its response to determine if the application's code is vulnerable.
11. **Lua**: lightweight and extensible scripting language created in Brazil, designed to expand applications.
12. **MAST**: Mobile Application Security Testing is when a tool analyzes the source code or package of an application to identify programming errors and conditions that indicate vulnerabilities.
13. **NVD**: National Vulnerability Database, the US government's vulnerability database.
14. **OOB**: Out-of-Band.
15. **OAST**: Out-of-band Application Security Testing is when a tool tries to force a web application to connect to other servers to identify otherwise invisible vulnerabilities in the application.
16. **OSVDB**: Open Source Vulnerability Database.
17. **OWASP**: Open Web Application Security Project.
18. **Passive Analysis**: when a security analysis identifies vulnerabilities and exposures without executing attacks or drawing attention.
19. PLUS: Indicates functionality available only in the Hybrid Platinum Plus license.
20. **Proof of Concept (PoC)**: Set of actions to demonstrate that a product will work as intended.
21. **Rule**: An option that allows to enable or disable one or more vulnerability checks.
22. **SAST**: Static Application Security Testing is when a tool analyzes the source code of an application to identify programming errors and conditions that indicate vulnerabilities. Also known as a white-box test.
23. **XHR**: XMLHttpRequest is an API used to send HTTP or HTTPS requests from JavaScript.

For additional product documentation, visit **syhunt.com/docs**

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