



**OPENSCA**

# OpenSCA: Manage Open Source Risks by an Open Source Solution

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Open Source Community Operation

Xmirror Security



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- 01 Our Motivation
- 02 OpenSCA
- 03 Our community & cases
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Part  
**01**

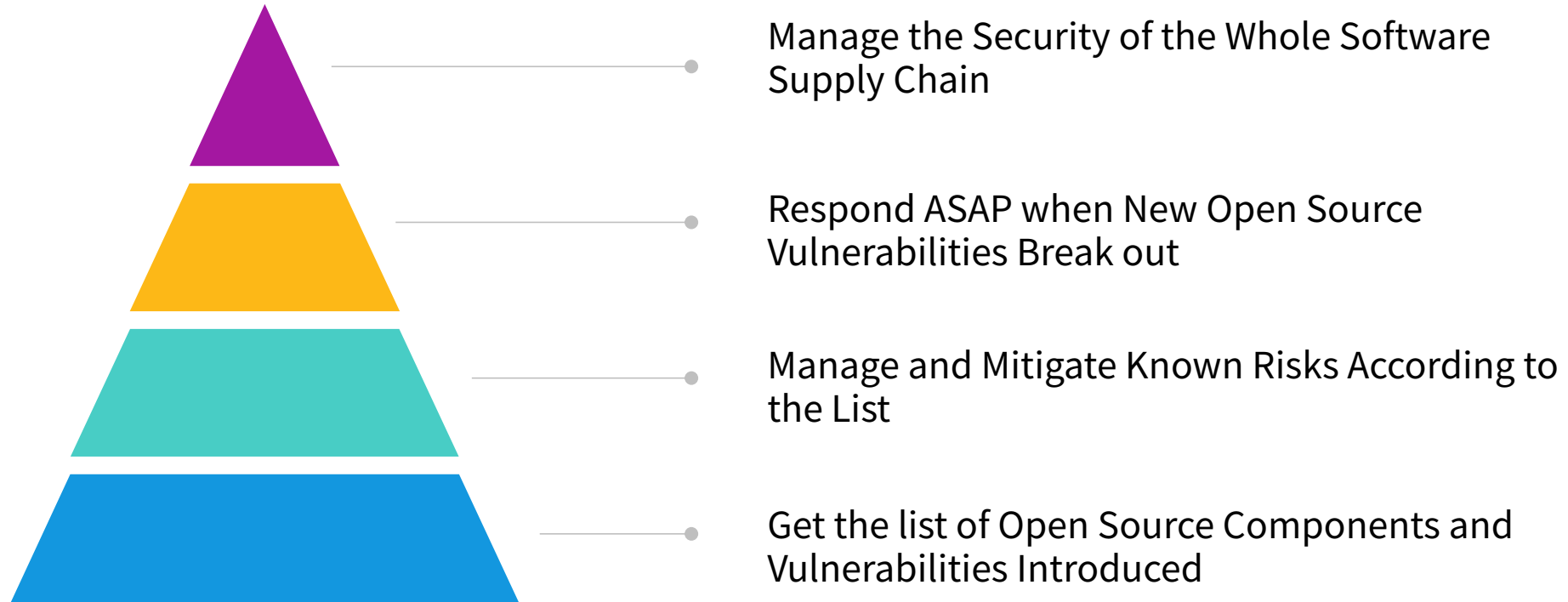
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## Motivation

The purpose and potential of an Open Source solution

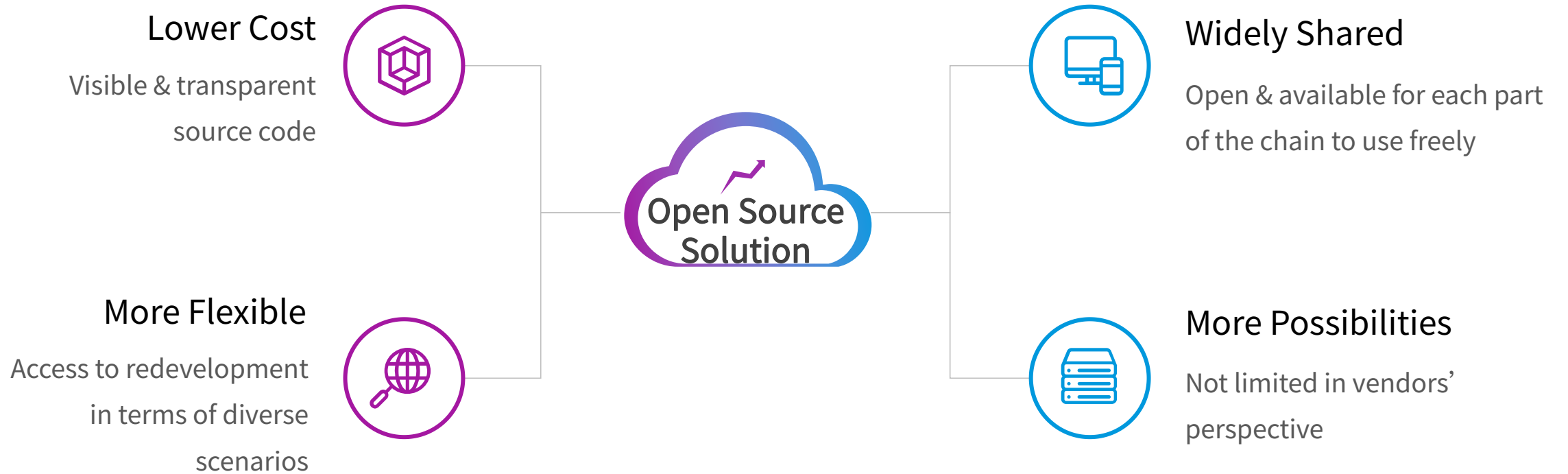
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# || The Purpose of Using SCA (Software Composition Analysis)





# Advantages of the Open Source Solution



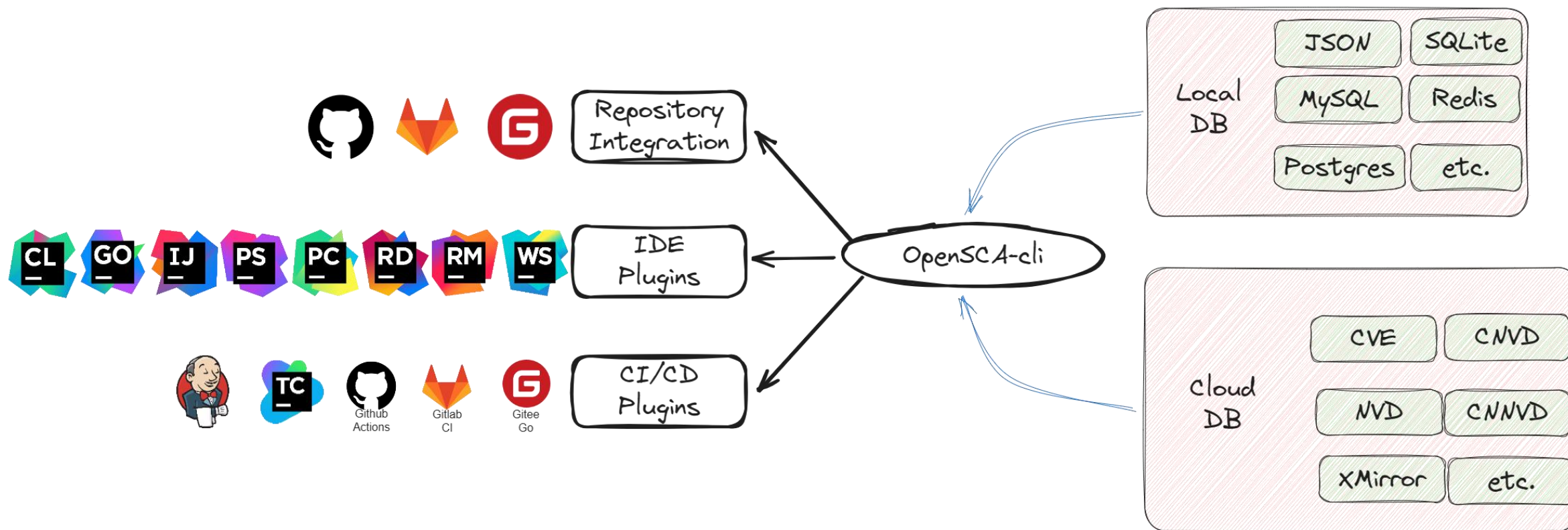
Part  
02

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# OpenSCA

What is it? How can it help?

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Open Source

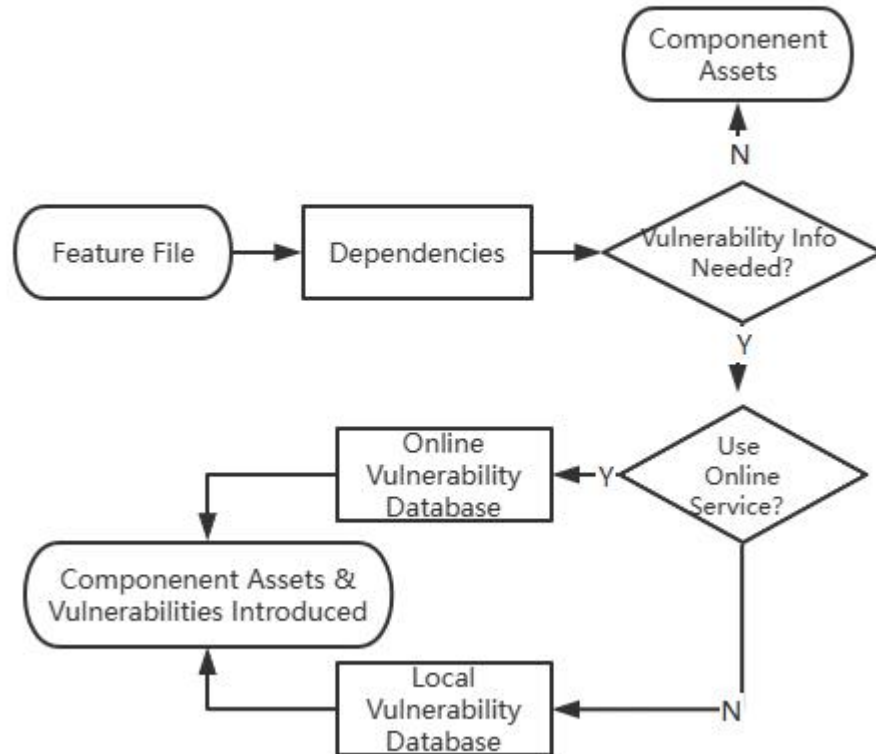
Unlimited access

User-friendly

Multiple capabilities



OpenSCA-cli  
Work Flow



## Localhost: open source engine

- Analyze dependencies
- Get info from online or local knowledge base
- Generate reports

## Online knowledge base

- Return vulnerability & license info to the engine

LANGUAGE	PACKAGE MANAGER	FILE
Java	Maven	pom.xml
Java	Gradle	.gradle .gradle.kts
JavaScript	Npm	package-lock.json package.json yarn.lock
PHP	Composer	composer.json composer.lock
Ruby	gem	gemfile.lock
Golang	gomod	go.mod go.sum
Rust	cargo	Cargo.lock
Erlang	Rebar	rebar.lock
Python	Pip	Pipfile Pipfile.lock setup.py requirements.txt requirements.in (For the latter two, pipenv environment & internet connection are needed)

No environment is needed (except the analysis of 2 Python feature files)

## ▼ Assets 15

 <a href="#">checksums.txt</a>
 <a href="#">opensca-cli_v1.0.12_Darwin_arm64.zip</a>
 <a href="#">opensca-cli_v1.0.12_Darwin_x86_64.zip</a>
 <a href="#">opensca-cli_v1.0.12_Linux_arm6.zip</a>
 <a href="#">opensca-cli_v1.0.12_Linux_arm64.zip</a>
 <a href="#">opensca-cli_v1.0.12_Linux_arm7.zip</a>
 <a href="#">opensca-cli_v1.0.12_Linux_i386.zip</a>
 <a href="#">opensca-cli_v1.0.12_Linux_x86_64.zip</a>
 <a href="#">opensca-cli_v1.0.12_Windows_arm6.zip</a>
 <a href="#">opensca-cli_v1.0.12_Windows_arm64.zip</a>
 <a href="#">opensca-cli_v1.0.12_Windows_arm7.zip</a>
 <a href="#">opensca-cli_v1.0.12_Windows_i386.zip</a>
 <a href="#">opensca-cli_v1.0.12_Windows_x86_64.zip</a>
 <a href="#">Source code (zip)</a>
 <a href="#">Source code (tar.gz)</a>

. Or download the source code and compile (go 1.18 and above is needed)

```
git clone https://github.com/XmirrorSecurity/OpenSCA-cli.git opensca
cd opensca
go work init cli analyzer util
go build -o opensca-cli cli/main.go
```

The default option is to generate the program of the current system architecture. If you want to try it for other system architectures, you can set the following environment variables before compiling.

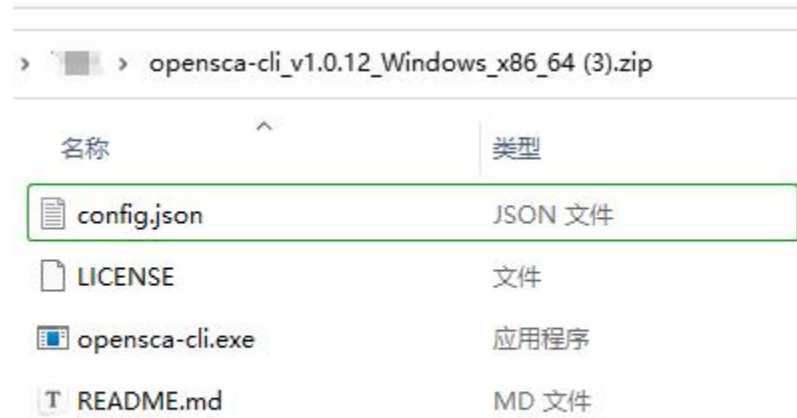
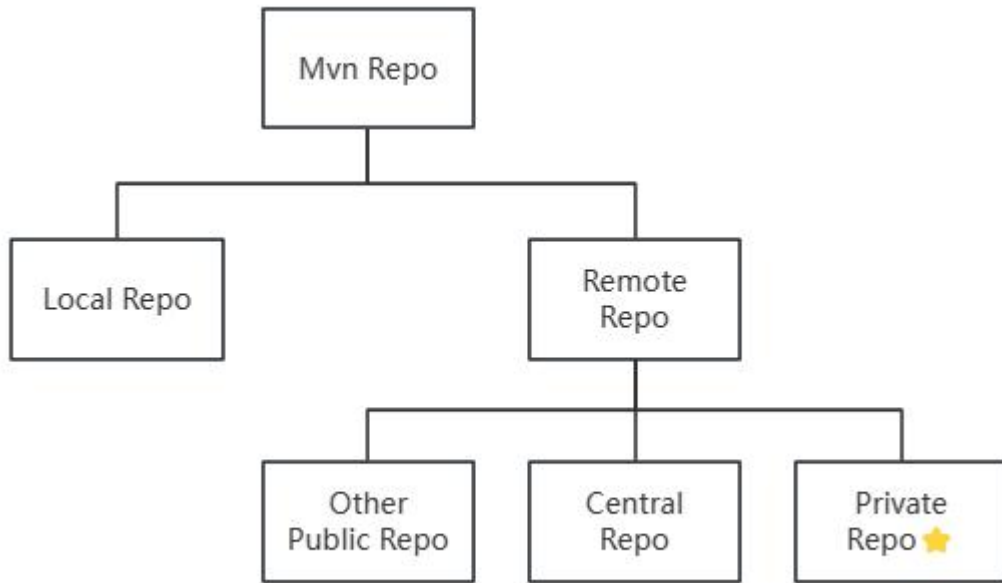
- Disable `CGO_ENABLED` `CGO_ENABLED=0`
- Set the operating system `GOOS=${OS} \\ darwin,freebsd,linux,windows`
- Set the architecture `GOARCH=${arch} \\ 386,amd64,arm`

- Windows
- Linux
- FreeBSD
- MacOS

- Support both online and local knowledge bases
- Allow diverse formats of local knowledge base, including JSON, SQLite, MySQL, Redis and Postgres

## Explanations of Vulnerability Database Fields

FIELD	Description	REQUIRED OR NOT
vendor	the manufacturer of the component	N
product	the name of the component	Y
version	the versions of the component affected by the vulnerability	Y
language	the programming language of the component	Y
name	the name of the vulnerability	N
id	custom identifier	Y
cve_id	cve identifier	N
cnnvd_id	cnnvd identifier	N
cnvd_id	cnvd identifier	N
cwe_id	cwe identifier	N
Description	the Description of the vulnerability	N
Description_en	the Description of the vulnerability in English	N
suggestion	the suggestion for fixing the vulnerability	N
attack_type	the type of attack	N
release_date	the release date of the vulnerability	N
security_level_id	the security level of the vulnerability (diminishing from 1 to 4)	N
exploit_level_id	the exploit level of the vulnerability (0-N/A 1-Available)	N



For v1.0.9 and above, local maven component database can be configured in the following format in the configuration file:

```
{
  "maven": [
    {
      "repo": "url",
      "user": "user",
      "password": "password"
    }
  ]
}
```

- Allow using private Maven Repo through configuration



## Easy to start

One command in CMD/CRT  
to scan and get the result



## Complete ability

Independent logic  
executed in localhost



## Online/offline applicable

Choose freely according  
to the specific scenario



## Flexible

Freely integrated into  
the process of R&D

## Scan & Report in CLI/CRT (default)

Detect the components only:

```
opensca-cli -path ${project_path}
```

Connect to the cloud vulnerability database:

```
opensca-cli -url ${url} -token ${token} -path ${project_path}
```

Or use the local vulnerability database:

```
opensca-cli -db db.json -path ${project_path}
```

## Scan & Report in Files (use the `out` parameter)

Files supported by the `out` parameter are listed below:

TYPE	FORMAT	SPECIFIED SUFFIX	VERSION
REPORT	json	.json	*
	xml	.xml	*
	html	.html	v1.0.6 and above
SBOM	spdx	.spdx .spdx.json .spdx.xml	v1.0.8 and above
	cdx	.cdx.json .cdx.xml	v1.0.11 and above
	swid	.swid.json .swid.xml	v1.0.11 and above

### Sample

```
opensca-cli -url ${url} -token ${token} -path ${project_path} -out ${filename}.${suffix}
```

PARAMETER	TYPE	Description	SAMPLE
config	string	Set the configuration file path, when the program runs, the parameter of the configuration file will be used as the startup parameters. If the configuration parameter conflicts with the command-line input parameter, the latter will be taken.	-config config.json
path	string	Set the file or directory path to be detected.	-path ./foo
url	string	Check the vulnerabilities from the cloud vulnerability database and set the address of the cloud service. It needs to be used with the <code>token</code> parameter.	-url https://opensca.xmirror.cn
token	string	Cloud service verification. You have to apply for it on the cloud service platform and use it with the <code>url</code> parameter.	-token xxxxxxxx
vuln	bool	Show the vulnerabilities info only. Using this parameter, the component hierarchical architecture will <b>NOT</b> be included in the result.	-vuln
out	string	Save the result to the specified file whose format is defined by the suffix. The default is <code>JSON</code> v1.0.6 and above support the visualized report in <code>HTML</code> v1.0.8 and above support SBOM in <code>SPDX</code> v1.0.11 and above support SBOM in <code>SWID</code> and <code>Cyclonedx</code>	-out output.json -out output.html -out output.xml -out output.spdx -out output.spdx.xml -out output.spdx.json -out output.swid.xml -out output.swid.json -out output.cdx.xml -out output.cdx.json
progress	bool	Show the progress bar.	-progress
dedup	bool	Same result deduplication	-dedup

```

{
  "task_info": {
    "tool_version": "v1.0.9",
    "app_name": "WebGoat-8.0.0.M25",
    "size": 317160017,
    "start_time": "2022-08-26 15:51:23",
    "end_time": "2022-08-26 16:01:31",
    "cost_time": 600.80044684
  },
  "direct": false,
  "indirect_vulnerabilities": 164,
  "children": [
    {
      "vendor": "org.owasp.webgoat",
      "name": "webgoat-container",
      "version": "v8.0.0.M25",
      "language": "Java",
      "direct": true,
      "paths": [
        "WebGoat-8.0.0.M25/webgoat-container/pom.xml/[org.owasp.webgoat:webgoat-container:v8.0.0.M25]"
      ],
      "indirect_vulnerabilities": 5,
      "children": [
        {
          "vendor": "com.fasterxml.jackson.datatype",
          "name": "jackson-datatype-jsr310",
          "version": "2.8.11",
          "language": "Java",
          "direct": true,
          "paths": [
            "WebGoat-8.0.0.M25/webgoat-container/pom.xml/[org.owasp.webgoat:webgoat-container:v8.0.0.M25]/[com.fasterxml.jackson.datatype:jackson-datatype-jsr310:2.8.11]"
          ],
          "vulnerabilities": [
            {
              "name": "FasterXML Jackson 输入验证错误漏洞",
              "id": "XMIRROR-2018-1000873",
              "cve_id": "CVE-2018-1000873",
              "cnnvd_id": "CNNVD-201812-938",
              "cnvd_id": "CNVD-2019-41722",
              "cwe_id": "CWE-20",
              "description": "FasterXML Jackson是美国FasterXML公司的一款适用于Java的数据处理工具。在FasterXML Jackson 2.9.8之前版本中的Jackson-Modules-Java8存在输入验证错误漏洞。该漏洞源于网络系统",
              "suggestion": "目前厂商已发布升级补丁以修复漏洞，补丁获取链接：\nhttps://github.com/FasterXML/jackson-modules-java8/pull/87",
              "attack_type": "远程",
              "release_date": "2018-12-20",
              "security_level_id": 3,
              "exploit_level_id": 0
            }
          ]
        }
      ]
    }
  ]
}

```

```

... \1.0.11>opensca-cli -path ... .zip
-out output0413.html
- unarchive: 1047
- parse project dependency: 147
| parse maven indirect dependency: 145
\ parse npm indirect dependency: 288

Complete!
Components:671 C:7 H:8 M:5 L:0
Vulnerabilities:30 C:7 H:12 M:9 L:0

```

说明

检测信息

结果概览

依赖列表

报告声明

意见反馈

检测目标	文件大小	检测时间	检测时长
WebGoat-8.0.0.M25	302.47 MB	2022-12-21 16:53:44	2分11秒

结果概览

组件统计 (1557个)

漏洞统计 (292个)

依赖列表

组件	语言	风险等级	漏洞数	依赖方式
set-value@0.4.3	JavaScript	严重	总: 2 (2 0 0 0)	间接依赖

输出路径

- WebGoat-8.0.0.M25/docs/package-lock.json/[startbootstrap-freelancer:5.0.2]/[browser-sync:2.26.3]/[chokidar:2.0.4]/[braces:2.3.2]/[snapdragon:0.8.2]/[base:0.11.2]/[cache-base:1.0.1]/[union-value:1.0.0]/[set-value:0.4.3]

组件漏洞

- 总数: 2个
- 严重: 2个
- 高危: 0个
- 中危: 0个
- 低危: 0个

漏洞名称	set-value 资源管理错误漏洞
风险等级	严重
漏洞编号	XMIRROR-2019-10747   CVE-2019-10747   CNNVD-201908-1908   undefined   CWE-400
发布日期	2019-08-23
利用难度	困难
攻击类型	远程
漏洞描述	set-value是一款能够使用点表示法在对象上设置嵌套值的模块。set-value 3.0.1之前版本中存在资源管理错误漏洞。该漏洞源于网络系统或产品对系统资源（如内存、磁盘空间、文件等）的管理不当。
修复建议	目前厂商已发布升级补丁以修复漏洞，补丁获取链接：https://github.com/jonschlinkert/set-value/commit/95e9d9923f8a8b4a01da1ea138fcc39ec7b6b15f

- Overview of the result is printed in CMD
- Results in detail including dependency structure and vulnerability introduced can be shown in JSON/HTML/csv/SQLite



SELECT \* FROM component LIMIT 100

搜索结果集 耗时: 4ms < 1 2 > 共 106 条

id	* name	* version	vendor	* language	* purl
INTEC	VARCHAR (50)	VARCHAR (50)	VARCHAR (50)	VARCHAR (50)	VARCHAR (256)
1	testvul	0.0.1-SNAPSHOT	com.test	Java	pkg:maven/com.test/testvul@0.0.1-SNAPSHOT
2	spring-boot-starter-web	3.1.0	org.springframework.boot	Java	pkg:maven/org.springframework.boot/spring-boot-starter-web@3.1.0
3	spring-boot-starter-aop	3.1.0	org.springframework.boot	Java	pkg:maven/org.springframework.boot/spring-boot-starter-aop@3.1.0
4	spring-boot-starter-mail	2.7.1	org.springframework.boot	Java	pkg:maven/org.springframework.boot/spring-boot-starter-mail@2.7.1
5	spring-boot-starter-validation	2.7.3	org.springframework.boot	Java	pkg:maven/org.springframework.boot/spring-boot-starter-validation@2.7.3
6	mysql-connector-j	8.0.33	com.mysql	Java	pkg:maven/com.mysql/mysql-connector-j@8.0.33
7	spring-boot-starter-test	3.1.0	org.springframework.boot	Java	pkg:maven/org.springframework.boot/spring-boot-starter-test@3.1.0
8	mybatis-plus-boot-starter	3.5.2	com.baomidou	Java	pkg:maven/com.baomidou/mybatis-plus-boot-starter@3.5.2
9	dynamic-datasource-spring-boot-starter	3.2.0	com.baomidou	Java	pkg:maven/com.baomidou/dynamic-datasource-spring-boot-starter@3.2.0
10	freemarker	2.3.28	org.freemarker	Java	pkg:maven/org.freemarker/freemarker@2.3.28
11	fastjson	1.2.83	com.alibaba	Java	pkg:maven/com.alibaba/fastjson@1.2.83
12	lombok	1.18.10	org.projectlombok	Java	pkg:maven/org.projectlombok/lombok@1.18.10
13	guava	20.0	com.google.guava	Java	pkg:maven/com.google.guava/guava@20.0
14	javax.servlet-api	4.0.1	javax.servlet	Java	pkg:maven/javax.servlet/javax.servlet-api@4.0.1
15	commons-pool2	2.11.1	org.apache.commons	Java	pkg:maven/org.apache.commons/commons-pool2@2.11.1

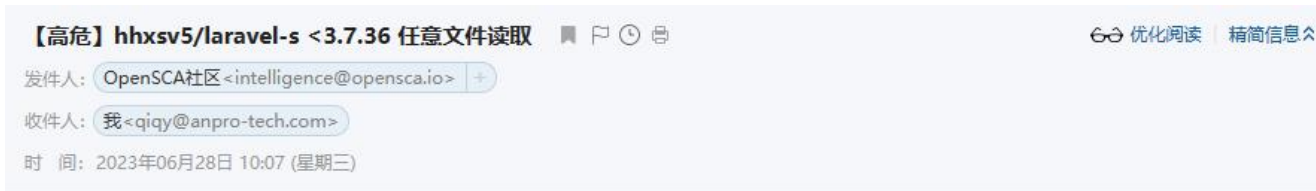
Name	Version	Vendor	License	Language	PURL
spring-boot-starter-web	3.1.0	org.springframework.boot	Apache-2.0	Java	pkg:maven/org.springframework.boot/spring-boot-starter-web@3.1.0
spring-boot-starter-aop	3.1.0	org.springframework.boot	Apache-2.0	Java	pkg:maven/org.springframework.boot/spring-boot-starter-aop@3.1.0
spring-boot-starter-mail	2.7.1	org.springframework.boot	Apache-2.0	Java	pkg:maven/org.springframework.boot/spring-boot-starter-mail@2.7.1
spring-boot-starter-validation	2.7.3	org.springframework.boot	Apache-2.0	Java	pkg:maven/org.springframework.boot/spring-boot-starter-validation@2.7.3
mysql-connector-j	8.0.33	com.mysql	GPL-2.0-only	Java	pkg:maven/com.mysql/mysql-connector-j@8.0.33
spring-boot-starter-test	3.1.0	org.springframework.boot	Apache-2.0	Java	pkg:maven/org.springframework.boot/spring-boot-starter-test@3.1.0
mybatis-plus-boot-starter	3.5.2	com.baomidou	Apache-2.0	Java	pkg:maven/com.baomidou/mybatis-plus-boot-starter@3.5.2
dynamic-datasource-spring-boot-starter	3.2.0	com.baomidou	Apache-2.0	Java	pkg:maven/com.baomidou/dynamic-datasource-spring-boot-starter@3.2.0
freemarker	2.3.28	org.freemarker	BSD-3-Clause	Java	pkg:maven/org.freemarker/freemarker@2.3.28
fastjson	1.2.83	com.alibaba	Apache-2.0	Java	pkg:maven/com.alibaba/fastjson@1.2.83
lombok	1.18.10	org.projectlombok	MIT	Java	pkg:maven/org.projectlombok/lombok@1.18.10

# Standard SBOM(Software Bill of Materials) Supported

```
{
  "SPDXID": "SPDXRef-DOCUMENT",
  "spdxVersion": "SPDX-2.2",
  "creationInfo": {
    "created": "2022-12-21T09:22:54Z",
    "creators": [
      {
        "Tool": "SPDX Tools",
        "Organization": "XMIRROR"
      }
    ],
    "licenseListVersion": "3.8"
  },
  "name": "qqysbom",
  "dataLicense": "CC0-1.0",
  "documentNamespace": "https://www.xmirror.cn/spdxdocs/qqysbom-47547f4a-2d04-11b2-80d1-0242ac110002",
  "documentDescribes": [],
  "packages": [
    {
      "SPDXID": "SPDXRef-ch.qos.logback-logback-classic-1.1.11",
      "copyrightText": "NOASSERTION",
      "downloadLocation": "NOASSERTION",
      "filesAnalyzed": false,
      "licenseConcluded": "(Custom OR EPL-1.0)",
      "licenseDeclared": "(Custom OR EPL-1.0)",
      "name": "logback-classic",
      "originator": "Organization:ch.qos.logback",
      "versionInfo": "1.1.11"
    },
    {
      "SPDXID": "SPDXRef-org.springframework.security-spring-security-test-4.2.10.RELEASE",
      "copyrightText": "NOASSERTION",
      "downloadLocation": "NOASSERTION",
      "filesAnalyzed": false,
      "licenseConcluded": "Apache-2.0",
      "licenseDeclared": "Apache-2.0",
      "name": "spring-security-test",
      "originator": "Organization:org.springframework.security",
      "versionInfo": "4.2.10.RELEASE"
    }
  ]
}
```

```
{
  "bomFormat": "CycloneDX",
  "specVersion": "1.4",
  "version": 1,
  "metadata": {
    "component": {
      "bom-ref": "pkg:/@",
      "type": "application",
      "name": "",
      "purl": "pkg:/@"
    }
  },
  "components": [
    {
      "bom-ref": "pkg:maven/dev.jianmu/api@2.5.3",
      "type": "library",
      "author": "dev.jianmu",
      "name": "api",
      "version": "2.5.3",
      "purl": "pkg:maven/dev.jianmu/api@2.5.3"
    },
    {
      "bom-ref": "pkg:maven/dev.jianmu/el@2.5.3",
      "type": "library",
      "author": "dev.jianmu",
      "name": "el",
      "version": "2.5.3",
      "purl": "pkg:maven/dev.jianmu/el@2.5.3"
    },
    {
      "bom-ref": "pkg:npm/jianmu-ci-ui@2.5.3",
      "type": "library",
      "name": "jianmu-ci-ui",
      "version": "2.5.3",
      "purl": "pkg:npm/jianmu-ci-ui@2.5.3"
    }
  ]
}
```

Example of SBOM in SPDX & CycloneDX



## hhxsv5/laravel-s <3.7.36 任意文件读取

漏洞编号: CVE-2023-29931 CWE-22

风险等级: 高危

影响范围: hhxsv5/laravel-s <3.7.36

利用级别: 可利用

发布时间: 2023年06月23日

### 漏洞描述:

由于用户输入清理不当, 通过/src/Illuminate/Laravel.php端点, 此软件包的受影响版本容易受到任意文件读取。

### 修复建议:

暂无

### 参考链接:

- <https://github.com/hhxsv5/laravel-s/commit/05aa615527725f0b696da78ae4c7d3a5065bac6d>
- <https://github.com/hhxsv5/laravel-s/issues/437>

本情报由 OpenSCA 社区收集整理



免费使用 帮助文档

### OpenSCA开源威胁情报

【高危】hhxsv5/laravel-s <3.7.36 任意文件读取

漏洞编号: CVE-2023-29931 CWE-22

风险等级: 高危

影响范围: <3.7.36

利用级别: 可利用

发布时间: 2023-06-23

漏洞描述: 由于用户输入清理不当, 通过/src/Illuminate/Laravel.php端点, 此软件包的受影响版本容易受到任意文件读取。

修复建议: 暂无

参考链接: <https://github.com/hhxsv5/laravel-s/commit/05aa615527725f0b696da78ae4c7d3a5065bac6d>,  
<https://github.com/hhxsv5/laravel-s/issues/437>

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任何问题或反馈欢迎随时联系我们

Intelligence provided for community subscribers through email & IM

Part  
03

---

## Our community & cases


What have we done?

---

# Our Community



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[Resources](#)
[Community](#)
[Contribution](#)
[Documents](#)
[Start free](#)



blog

## SCA Technology Advanced Series (1): A Preliminary Study on SBOM Application Practice

The transparency of software components has become the basis for software supply chain security assurance, and SBOM software bill of materials, as an important starting point for software supply chain security governance, has...

[SBOM checklist](#)
[Supply chain security](#)
[SCA](#)

[See details >>](#)

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## Join OpenSCA community to build an open source solution with infinite possibilities

Resource Center

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Type

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- Report
- Video
- White paper




blog

SCA Technology Advanced Series



blog

The top ten of the RSAC



blog

NIO's massive data leaks, who will

## Contributors

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| <br>Wslzz<br>China · Changsha        | <br>java-shixiaotao<br>China · Chengdu | <br>zc373721880<br>China · Changsha  | <br>zrxJuly<br>China · Chengdu        | <br>TIANLIANG<br>China · Chengdu       |
| <br>xxcka<br>China · Changsha        | <br>Ist201448<br>China · Beijing       | <br>404NOTFound<br>China · Changsha  | <br>npc7<br>China · NA                | <br>zhangdapeng520<br>China · Chengdu  |
| <br>Jack Wu<br>China · Beijing       | <br>Fnzer0<br>China · Chengdu          | <br>magicyou<br>China · Beijing      | <br>Liu Wanli<br>China · Changsha     | <br>wenheshan<br>China · Changsha      |
| <br>wtx0<br>China · Chengdu         | <br>huyongfeng<br>China · Changsha    | <br>lzw_and_zs<br>China · Chengdu   | <br>xssle ON                         | <br>Yuan Shengjun<br>China · Changsha |
| <br>Teng Jiulin<br>China · Chengdu | <br>Lzx<br>China · Beijing           |                                    |                                     |                                      |

 优秀开源项目 OpenSCA 中国开源云联盟	 自主研发 创新成果 信息通信软件供 供应链安全社区	 GVP-Gitee最有 价值开源项目 OpenSCA-cli Gitee sctee	 全球十大 开源产品 软博会	 GLOBAL INFOSEC AWARDS WINNER CYBER DEFENSE MAGAZINE 2022	 CYBER SECURITY EXCELLENCE AWARDS WINNER 2022
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# Use Case: the SRC Department of an Internet Company

## Security Team



### Problem

DevOps flow's requirement for effectiveness demands a flexible and reliable Open Source security management tool.



### OpenSCA Solution

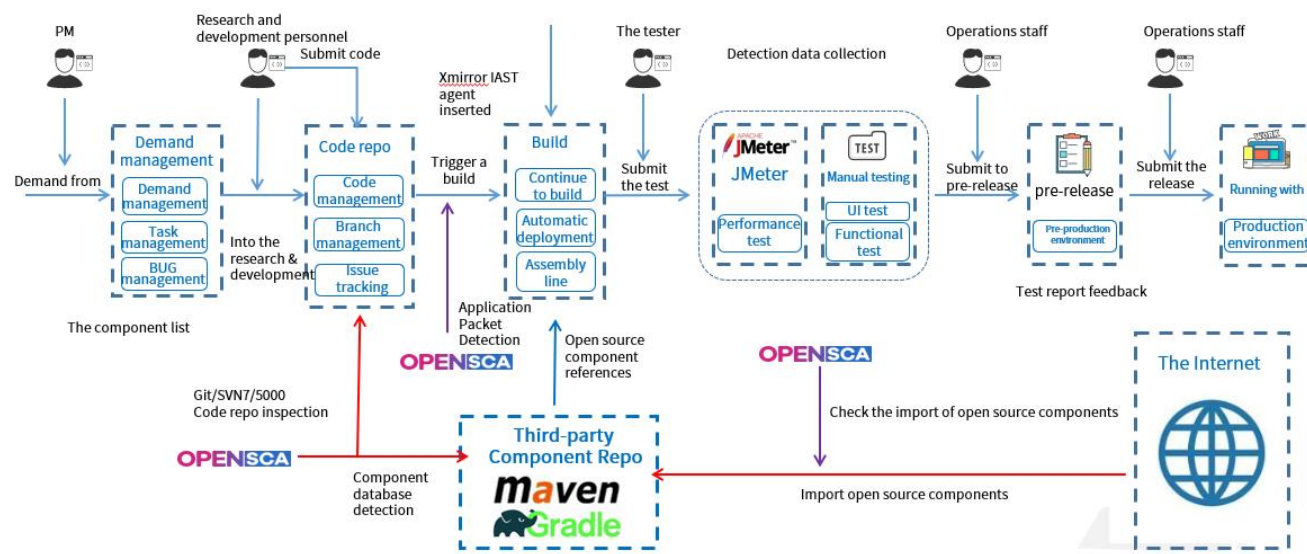
Redeveloped on the basis of OpenSCA, integrating it into different phases in DevOps and setting up a security management process using its result as a checking point.



### Result

- ✓ Security integrated into DevOps flow
- ✓ Reveal OS risks introduced in code constantly
- ✓ Clarify relevant OS components & vulnerabilities

## Scenario



The risk of vulnerabilities introduced by third-party OS components has been greatly reduced, achieving the inventory of internal component assets and vulnerability risks

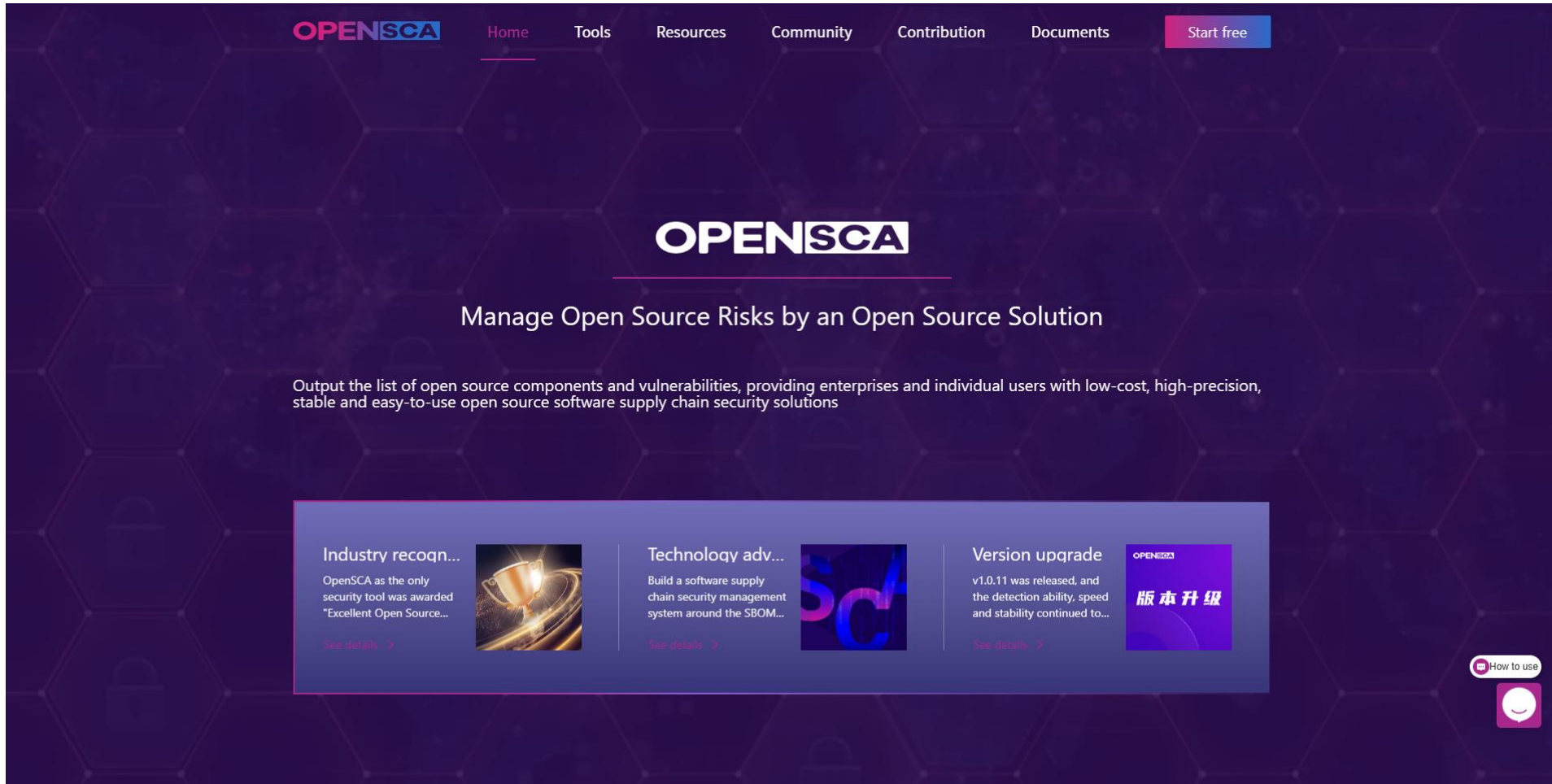
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## Build together

Join us for the shared future

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The screenshot shows the OpenSCA website homepage. At the top, there is a navigation bar with the OpenSCA logo on the left and links for Home, Tools, Resources, Community, Contribution, Documents, and a 'Start free' button on the right. The main heading is 'OPENSCA' in large white letters, followed by the tagline 'Manage Open Source Risks by an Open Source Solution'. Below this, a paragraph describes the tool's output: 'Output the list of open source components and vulnerabilities, providing enterprises and individual users with low-cost, high-precision, stable and easy-to-use open source software supply chain security solutions'. A central section features three columns of content: 'Industry recognition' with a trophy icon, 'Technology advancement' with a 'SC' icon, and 'Version upgrade' with a '版本升级' (Version Upgrade) icon. Each column includes a brief description and a 'See details' link. In the bottom right corner, there is a 'How to use' button with a smiley face icon.

- Provide solutions to international users
- Explorations to more applicable scenarios
- Work together for enhancing the security of the open source world





**OPENSICA**

# THANKS



Watch us