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Binary Scanning: The First Line of Defense Against Security Breaches

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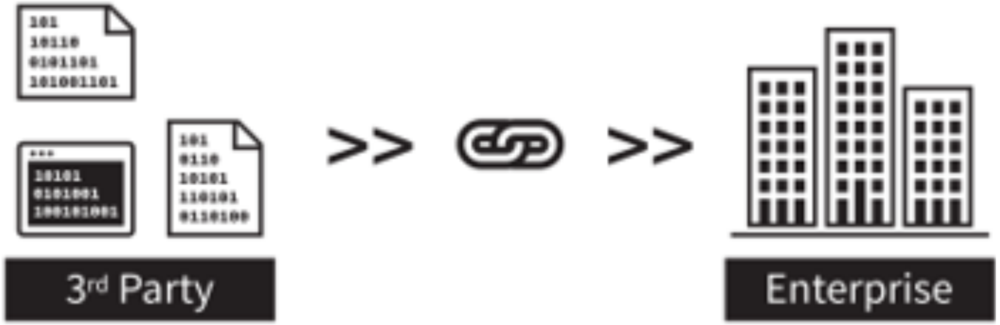
Know What’s In Your Third Party Code

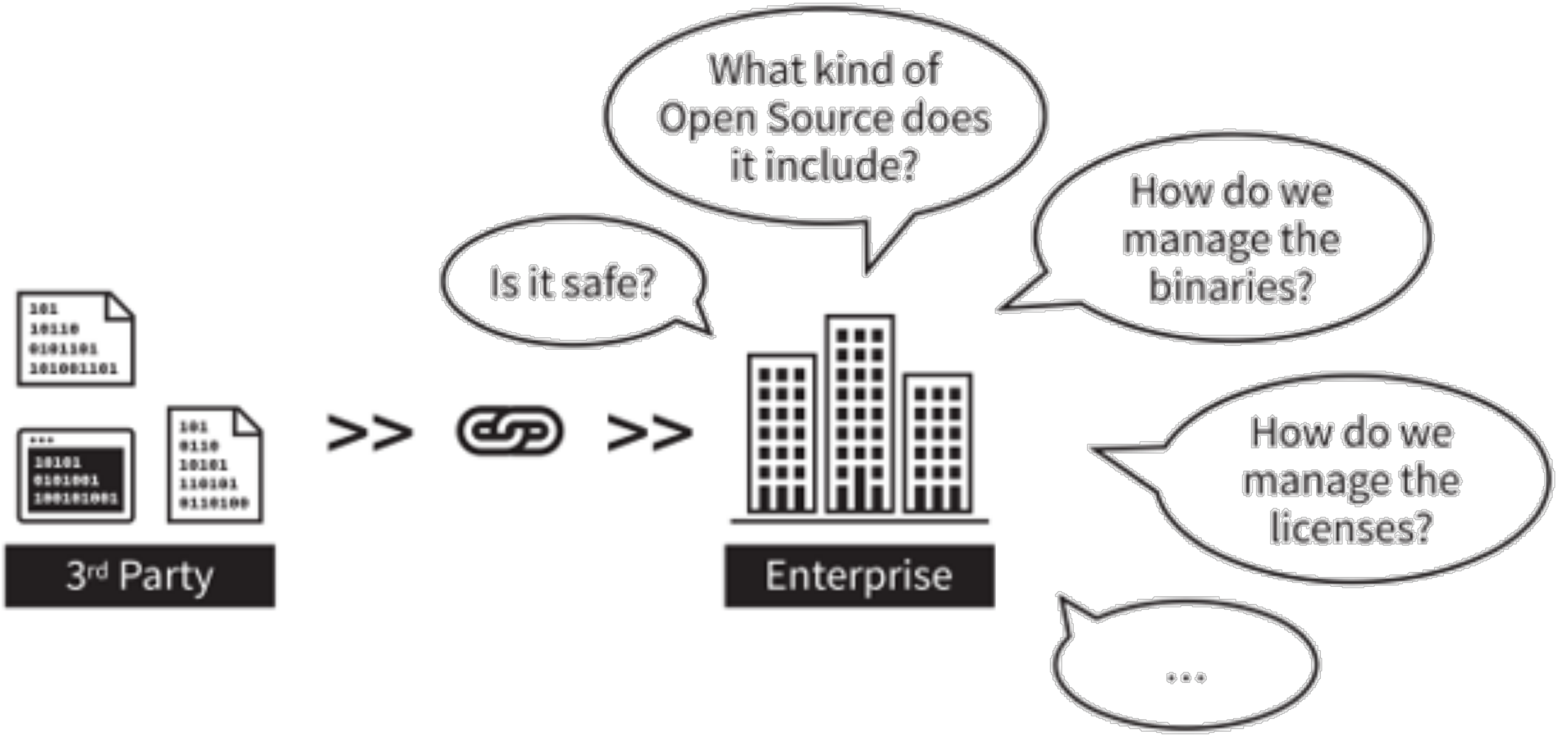
Why Use Third Party Code?

- To quickly build on sophisticated components or technology platforms
- To increase efficiency and reduce costs

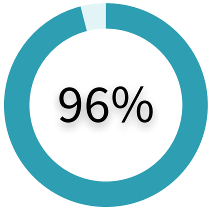


- Access Platforms or Components
- Increase Efficiency
- Reduce Costs

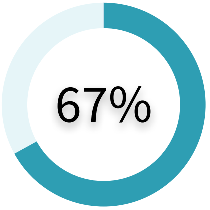
Concerns about Third Party Code



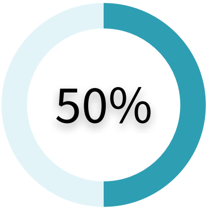
Open Source Prevalence & Vulnerabilities



of scanned applications included Open Source components



of analyzed applications using Open Source components had vulnerabilities

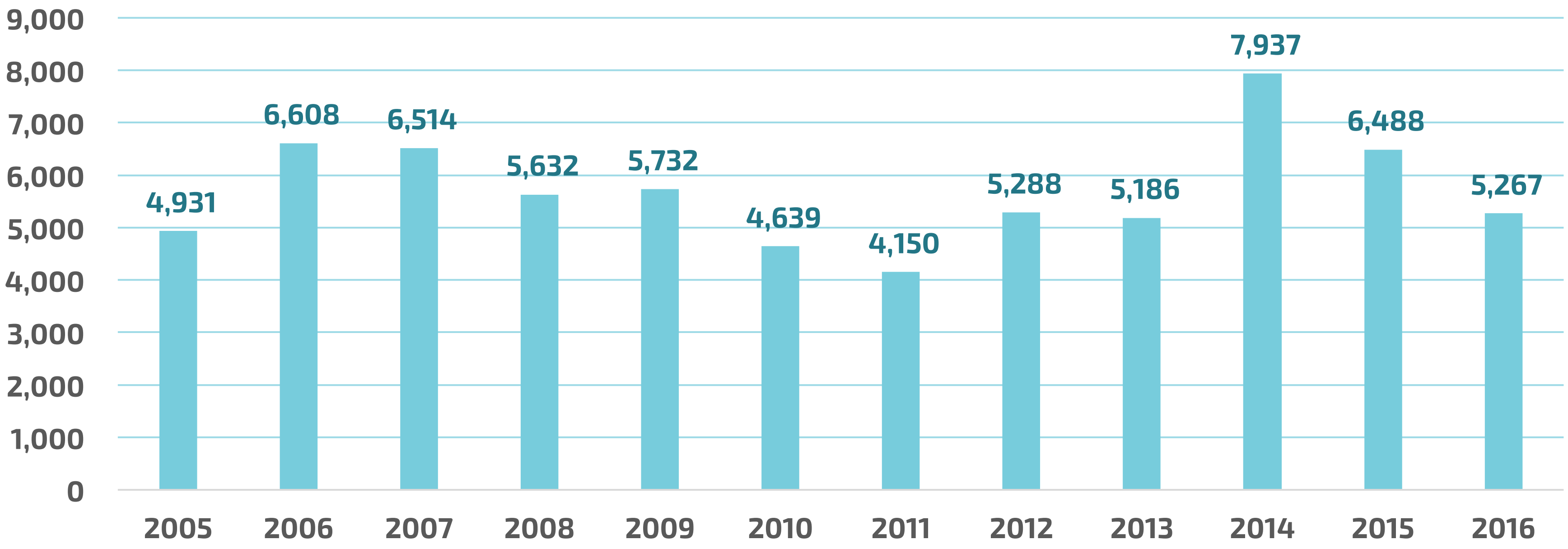


of vulnerabilities found in analyzed applications ranked "HIGH SEVERITY"

References: Black Duck's 2017 Open Source Security and Risk Analysis audit

About Security Vulnerabilities

	Heartbleed	Shellshock	Freak	Ghost	DROWN	SambaCry
Discovery	2014	2014	2015	2015	2016	2016
Release	2011	1989	1990s	2000	1990s	1990s
Component	OpenSSL	Bash	OpenSSL	GNU C Library	OpenSSL	SAMBA



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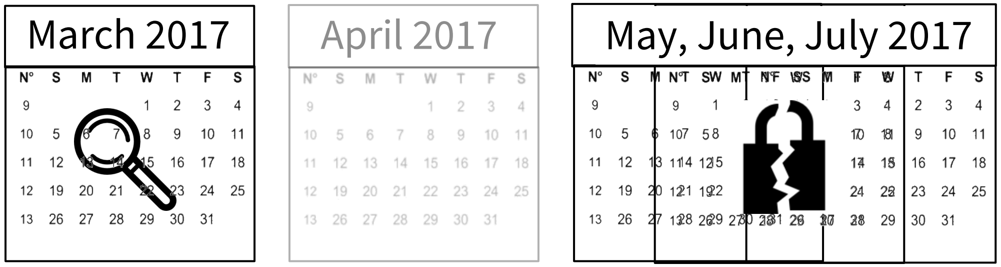
Equifax – A Preventable Breach

	Heartbleed	Shellshock	Freak	Ghost	DROWN	SambaCry	EQUIFAX Jakarta
Discovery	2014	2014	2015	2015	2016	2016	2017
Release	2011	1989	1990s	2000	1990s	1990s	2007
Component	OpenSSL	Bash	OpenSSL	GNU C Library	OpenSSL	SAMBA	Apache Struts

Exploited Known Security Vulnerability in Apache Struts



First discovered
patch update in March

60 days to fix

Breach occurred
in mid-May to July

Personal data of 145.5 million individuals exposed

Binary Scanning
As The First Line of Defense

Binary Scanning Tools

1 Static Code Analyzers

2 Checksum-Based Code Scanners

3 Hash-Based Code Scanners

4 Fingerprint-Based Code Scanners

Static Code Analyzers

- Designed to analyze source code to find common programming errors, such as buffer overflows and SQL Injection Flaws
- Offers limited binary code analysis by disassembling binary code to obtain source code
  - Potential violation of intellectual property laws

Checksum and Hash Based Scanners

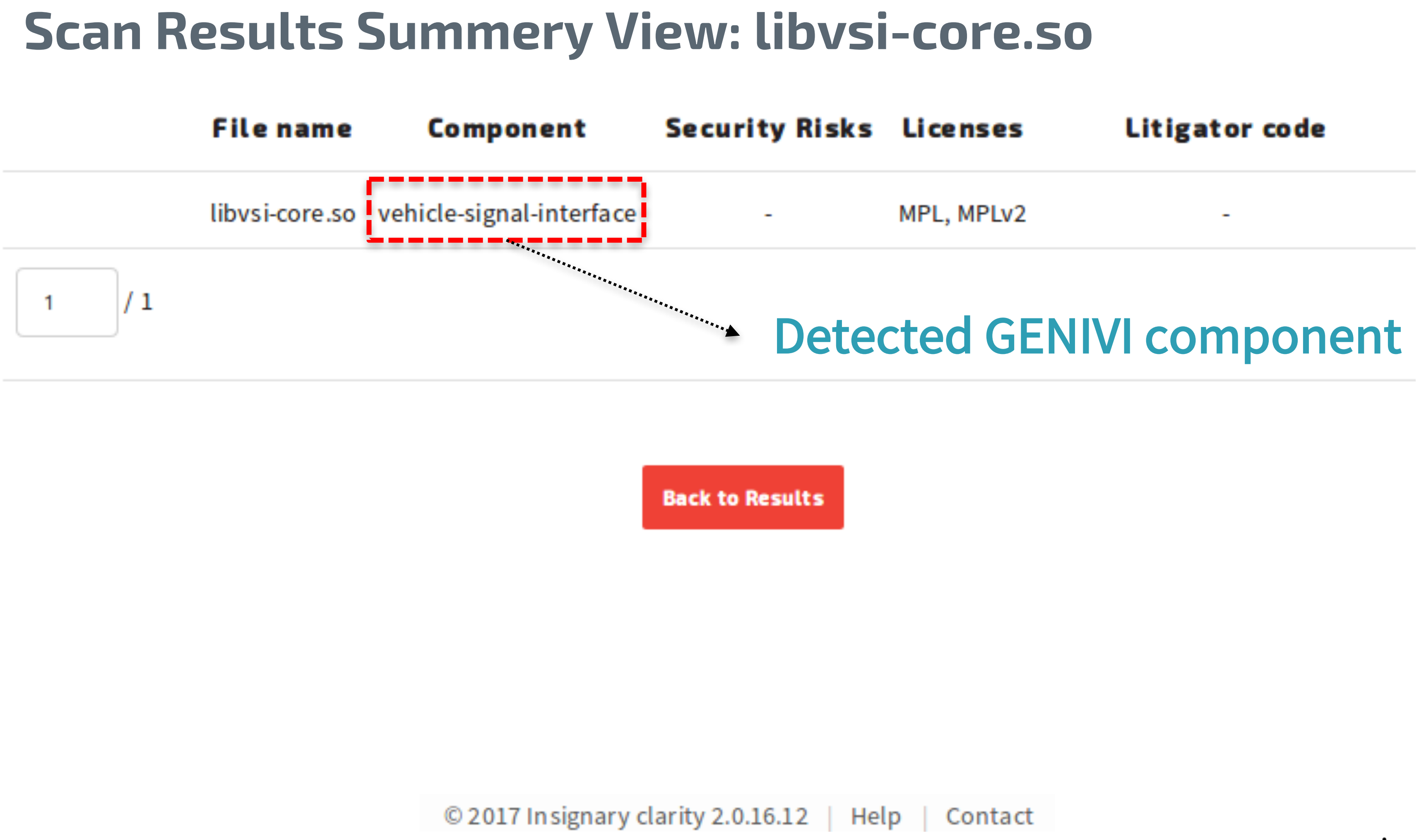
- Checksum-Based
  - Does not work with modified code
- Checksum & Hash-Based
  - Limited databases of OSS components
    - ➢ Dependency on CPU architecture

Fingerprint-based Binary Code Scanners

- Based on Binary Analysis Tool (BAT)
- Independent of CPU architecture
- Use fingerprints based on identifiers such as strings, function, or variable names extracted from source code or binary code
- Increase fidelity by using other information such as file names and package databases

GENIVI Code & Specific Component Scanning Results

GENIVI App Scan Results



Scan Results Summery View: libvsi-core.so

File name	Component	Security Risks	Licenses	Litigator code
libvsi-core.so	vehicle-signal-interface	-	MPL, MPLv2	-

Detected GENIVI component

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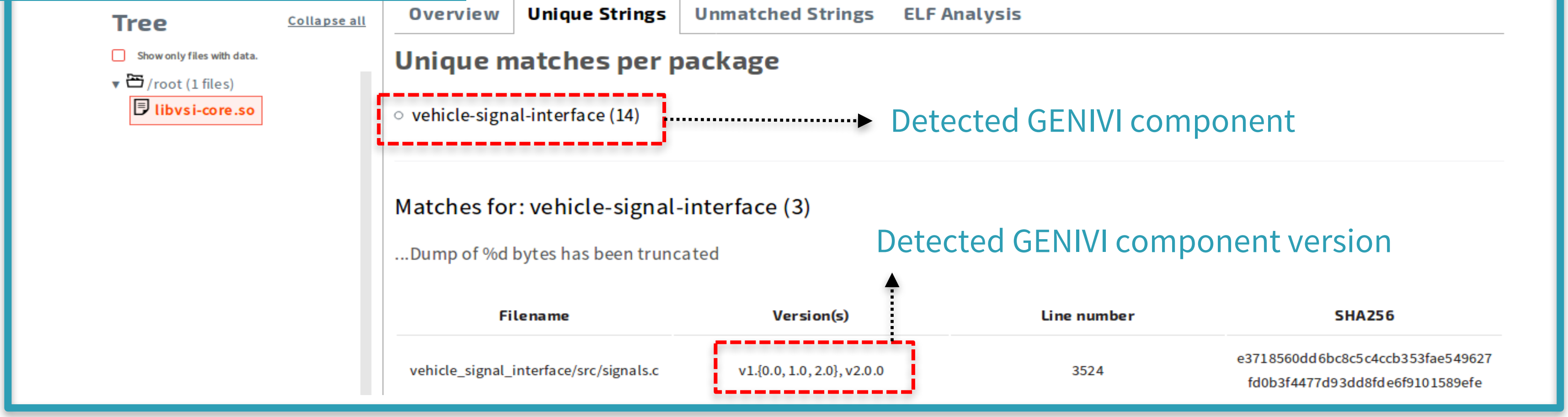
GENIVI Components Case Example

GENIVI Component



Tree Collapse all

□ Show only files with data.

▾ 🗀 /root (1 files)

libvsi-core.so

Overview | Unique Strings | Unmatched Strings | ELF Analysis

Unique matches per package

○ vehicle-signal-interface (14)

Detected GENIVI component

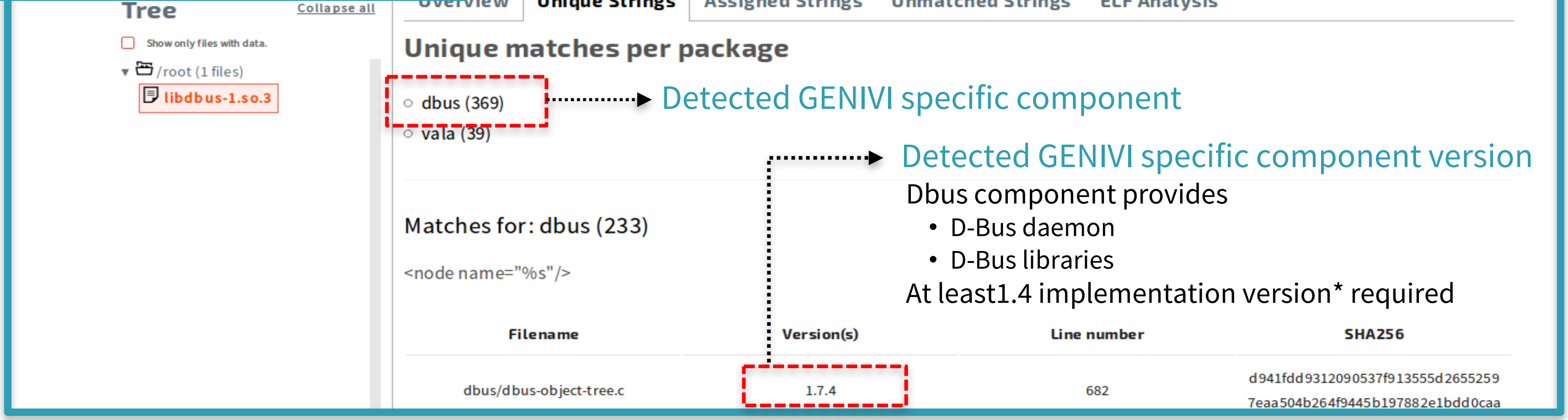
Matches for: vehicle-signal-interface (3)

...Dump of %d bytes has been truncated

Detected GENIVI component version

Filename	Version(s)	Line number	SHA256
vehicle_signal_interface/src/signals.c	v1.{0.0, 1.0, 2.0}, v2.0.0	3524	e3718560dd6bc8c5c4ccb353fae549627 fd0b3f4477d93dd8fde6f9101589efe

Other Repositories



Tree Collapse all

□ Show only files with data.

▾ 🗀 /root (1 files)

libdbus-1.so.3

Overview | Unique Strings | Assigned Strings | Unmatched Strings | ELF Analysis

Unique matches per package

○ dbus (369)

○ vala (39)

Detected GENIVI specific component

Detected GENIVI specific component version

Dbus component provides
- D-Bus daemon
- D-Bus libraries

At least1.4 implementation version* required

Matches for: dbus (233)

<node name="%s"/>

Filename	Version(s)	Line number	SHA256
dbus/dbus-object-tree.c	1.7.4	682	d941fdd9312090537f913555d2655259 7eaa504b264f9445b197882e1bdd0caa

*GENIVI Platform Compliance Specification

Thank you!

Please visit our showcase between 5:30PM and 8:30PM today

Scan the QR code to test your binary at

www.truthisinthebinary.com