

Supply Chain Security

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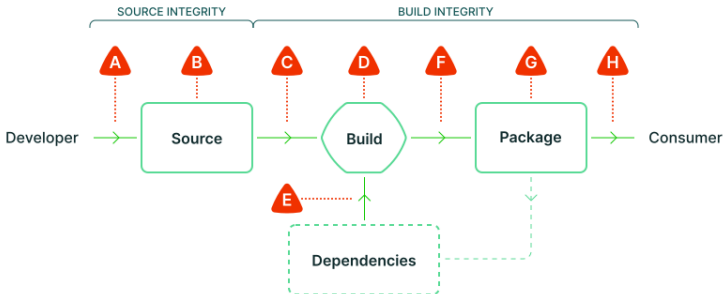
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Outline

Supply Chain Security

Vulnix

Problem statement



A Submit unauthorized change

B Compromise source repo

C Build from modified source

D Compromise build process

E Use compromised dependency

F Upload modified package

G Compromise package repo

H Use compromised package

image src:

<https://slsa.dev/spec/v0.1/#supply-chain-threats>

Breach cases

TODO: Move links

1959 CIA intercepted a USSR lunar probe

[https://www.cia.gov/readingroom/collection/
lunik-loan-space-age-spy-story](https://www.cia.gov/readingroom/collection/lunik-loan-space-age-spy-story)

2014 3rd party vendor credential leak on Home Depot's credit card terminals

[https://www.computerweekly.com/news/2240234281/
Home-Depot-traces-credit-card-data-hack-to-supplier-compromised](https://www.computerweekly.com/news/2240234281/Home-Depot-traces-credit-card-data-hack-to-supplier-compromised)

2021 backdoor in the open source PHP Git server

<https://news-web.php.net/php.internals/113838>

SLSA Framework

Source Integrity

Ensuring every change reflects the intent of producer.

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Availability

Ensuring that all code and change history are available for potential incident investigation.

NixOS / Spectrum Build Environment

TODO: Build environment picture

Hydra -> BinCache -> Jenkins -> Release

- — TII GitHub
- — OpenSrc locations

NixOS SLSA Solution

Hydra package signing

Binary cache package signing

Jenkins package signature verification

SCA (Software Composition Analysis)

- Automated process that defines the open source software in the codebase.
- Companies need to be aware of potential obligations, limitations and security vulnerabilities that open source brings into play.
- As the codebase grows, tracking all of those becomes rather tricky.
- SCA takes use of automatic scanners to enable productivity without compromise on security.

Look & Feel

TODO: Vulnix results screenshot here

[Vulnix] Theory of operation

- Pulls all known CVEs from NVD
- Matches a list of derivations against CVE entries
- Whitelisting is used to suppress unwanted results

[Vulnix] Pros & Cons

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Pros

- Fast
- Easy integration
- Written in Python - easy to maintain

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Cons

- Simplistic mapping can lead to false positives / negatives
- Inactive development