



# Vulnerability Comparison Report

A comprehensive analysis comparing vulnerabilities in your container images versus Chainguard's hardened alternatives.

## Executive Summary

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### Security Vulnerability Assessment for Sample\_Customer

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This comprehensive vulnerability assessment demonstrates the challenges that Sample\_Customer face in managing CVE's at scale. Sample\_Customer is not alone in this challenge as many in the industry are grappling with CVE spawl & controls around OSS. This report shows the significant security advantages of migrating from standard container images to **Chainguard's hardened alternatives**. Analysis of 3 container image pairs reveals a **99.7% overall CVE reduction**, eliminating 1056 vulnerabilities across your infrastructure.

### Key Findings

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- **Significant Vulnerability Reduction:** 3 of 3 images show measurable improvement with Chainguard alternatives
- **Average Per-Image Improvement:** 98.4% average CVE reduction per improved image
- **Total Impact:** 1059 vulnerabilities in current images reduced to 3 with Chainguard
- **Reduced Attack Surface:** Distroless and minimal base images eliminate unnecessary components
- **Faster Remediation:** Streamlined images enable quicker security updates and patches

### Business Impact

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**Overall Business Value** A direct cost savings can be calculated as follows. 1-4hrs to resolve a CVE when you consider the research, business process/approvals and actual engineering effort. The equates to a cost of over **\$2.7m** based on average wage/engineering effort metrics.

- **Enhanced Security Posture:** 99.7% reduction translates to significantly lower risk of a breach
- **Compliance Readiness:** Fewer vulnerabilities mean easier security compliance achievement
- **Operational Efficiency:** 1056 fewer CVEs to track, patch, and manage
- **Developer Productivity:** Less time addressing security issues, more time on shipping value to the business

### Recommendation

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With demonstrated **99.7% CVE reduction** across 3 analyzed images, we strongly recommend transitioning to Chainguard images as part of your DevSecOps strategy to mature security practices and reduce operational toil across platform, security, and development teams.

CVE Reduction Analysis

99.7%

CVE REDUCTION

1056 fewer vulnerabilities with Chainguard images

Your Images

1059

TOTAL VULNERABILITIES

SEVERITY	COUNT
Critical	15
High	96
Medium	161
Low	93
Negligible	694
Unknown	0

Chainguard Images

3

TOTAL VULNERABILITIES

SEVERITY	COUNT
Critical	0
High	1
Medium	0
Low	2
Negligible	0
Unknown	0

Images Scanned

YOUR IMAGE	TOTAL VULNERABILITIES	CHAINGUARD IMAGE	TOTAL VULNERABILITIES
nginx:latest	146	cgr.dev/chainguard/nginx:latest	0
alpine/java:21	43	cgr.dev/chainguard/jdk:openjdk-21	2
python:latest	870	cgr.dev/chainguard/python:latest	1

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Images marked with an asterisk were retried with the :latest tag after initial scan failure.

# Appendix

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## Sample\_Customer Specific Logic/Assumptions

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- Sample\_Customer provided **3 Images**
- If the upstream software was EOL we mapped to :latest in Chainguard image
- Gype is leveraged as the scanner tool to scan both the Sample\_Customer provided image as well as the Chainguard image
- If a scan with gype failed on any image, it attempted a tag for re-scanning which is represented with a \*
- If the above logic fails, the entire row will fail and is not included in the report. This is to ensure 1:1 comparison. Eg: some Customer images are behind a paywall or simply not available in the public registry
- CVE cost figure based on: Average 1hr to resolve a single CVE (including business process). An engineer wage of \$75 per hour multiplied by # of CVE's

## Methodology

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This report was generated using the following methodology:

- **Scanning Tool:** Gype vulnerability scanner
- **Data Sources:** National Vulnerability Database (NVD) and other security databases
- **Image Analysis:** Container images were scanned for known vulnerabilities
- **Comparison:** Customer images compared against Chainguard hardened alternatives

## Appendix (continued)

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### Severity Levels

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Vulnerabilities are classified using the following severity levels:

- **Critical:** Vulnerabilities with CVSS scores of 9.0-10.0
- **High:** Vulnerabilities with CVSS scores of 7.0-8.9
- **Medium:** Vulnerabilities with CVSS scores of 4.0-6.9
- **Low:** Vulnerabilities with CVSS scores of 0.1-3.9
- **Negligible:** Vulnerabilities with minimal impact
- **Unknown:** Vulnerabilities without assigned severity scores

### About Chainguard Images

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Chainguard Images are container images built with security-first principles:

- **Minimal Base:** Built on minimal base images to reduce attack surface
- **Distroless:** Contains only application dependencies, no package managers
- **Regular Updates:** Continuously updated with latest security patches
- **Zero CVEs:** Many images maintain zero known vulnerabilities
- **SBOM Included:** Software Bill of Materials for transparency
- **Provenance Tracking:** Complete software supply chain transparency with cryptographic attestations and verifiable build processes

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