

SECURITY ASSESSMENT REPORT

# OWASP Juice Shop (Benchmark)

Web Application Security Assessment

14

FINDINGS

H

RISK  
GRADE

1

TARGETS

2026-06-26

OWA-SEC-2026-177 · v1.0 · Confidential

Prepared by Hermes Pentest Agent

# 01

## Executive Summary



**Overall Risk: High**

Score: 38/100

14 findings. 0 critical, 1 high.

### Findings by Severity



**Scope:** OWASP Juice Shop v20.0.0 running at http://127.0.0.1:3000. Full-scope web application assessment including active reconnaissance (nmap), vulnerability scanning (nuclei), directory discovery (ffuf), and manual verification of all findings. Scope: 127.0.0.1:3000 only.

**Window:** 2026-06-26 - 2026-06-26

**Limitations:** Assessed over plain HTTP (no HTTPS available). No authenticated testing performed. No destructive/exploitation tests executed. Target is a deliberately vulnerable training application (OWASP Juice Shop). External OSINT and network/AD testing excluded (localhost web-only assessment).

**IF YOU FIX NOTHING ELSE, FIX THIS ONE**

**No HTTPS / Plain HTTP Only**

**How we measured.** Controls-based scoring across 4 security domains with 16 controls assessed. Each control scored Pass/Warn/Fail against industry benchmarks (OWASP ASVS, CIS Benchmarks). Supplemented by automated scanning (nmap, nuclei, ffuf) and manual verification of all findings via curl and browser inspection.

**Severity bands:** Critical  $\geq 9.0$ , High 7.0-8.9, Medium 4.0-6.9, Low 0.1-3.9, Info 0.0

**Weights:** Pass=100, Warn=50, Fail=0

# 02

## Methodology

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Assessment conducted following **PTES (Penetration Testing Execution Standard)**.

PHASE	DESCRIPTION	TOOLS
Active Reconnaissance	Port scanning and service version detection on 127.0.0.1:3000	nmap 7.98
Vulnerability Scanning	Automated vulnerability detection using nuclei templates (694 templates)	nuclei v3.8.0 (kali-web container)
Directory Discovery	Web content brute-force discovery of hidden endpoints using targeted wordlist	ffuf v2.1.0 (kali-web container)
Manual Verification	Hands-on validation of all findings: header inspection, API testing, file access, browser-based verification of Score Board and SPA routes	curl, browser inspection
Reporting	CVSS 3.1 scoring, finding documentation, metadata creation, PDF report generation	WeasyPrint, Jinja2

**Timeline:** 2026-06-26 – 2026-06-26

**Testing Type:** Web Application Security Assessment

# 03

## Technical Findings

F-001 · DRAFT

Multi-tool confirmed

### No HTTPS / Plain HTTP Only

High

CVSS 7.5

CWE-319

http://127.0.0.1:3000/

HIGH

#### DESCRIPTION

Attackers anywhere on the same network segment can capture every byte of traffic in cleartext through passive packet capture — authentication credentials, session tokens, financial data, personal information, and all application content transit completely unprotected. The attacker does not need to compromise either endpoint; any network observer with Wireshark or tcpdump can read all traffic as plain text.

#### CVSS VECTOR

CVSS:3.1/AV:N/AC:L/PR:N/UI:N/S:U/C:H/I:H/A:N

#### PROOF OF CONCEPT

```
curl -sI https://127.0.0.1:3000/  
Connection refused - no HTTPS listener.  
curl -sI http://127.0.0.1:3000/  
HTTP/1.1 200 OK (plain text, no encryption).
```

#### EVIDENCE SCREENSHOT

```
No HTTPS – Plain HTTP Only
$ curl -sk --max-time 5 -v https://127.0.0.1:3000/

=== ATTEMPT HTTPS (curl -v https://127.0.0.1:3000/) ===
* Trying 127.0.0.1:3000...
* ALPN: curl offers h2,http/1.1
* TLSv1.3 (OUT), TLS handshake, Client hello (1):
* SSL Trust: peer verification disabled
* TLS connect error: error:0A00010B:SSL routines::wrong version number
* closing connection #0

=== RESULT: HTTPS CONNECTION FAILED ===

=== FALLBACK HTTP (curl -sI http://127.0.0.1:3000/) ===
HTTP/1.1 200 OK
Access-Control-Allow-Origin: *
X-Content-Type-Options: nosniff
X-Frame-Options: SAMEORIGIN
Feature-Policy: payment 'self'
X-Recruiting: /#/jobs
Content-Type: text/html; charset=UTF-8
Content-Length: 9903

=== RESULT: HTTP 200 OK – plaintext, no encryption ===
[!] ALL traffic transmitted in cleartext – no TLS protection
```

#### IMPACT

If exploited, sensitive data is fully exposed to unauthorized parties; attackers can modify or corrupt critical data.

#### REMEDIATION

1. Obtain TLS certificate. 2. Configure HTTPS. 3. Implement HTTP-to-HTTPS 301 redirect. 4. Enable HSTS. 5. Disable plain HTTP in production.

F-002 · DRAFT

Multi-tool confirmed

## Directory Listing on /ftp

Medium

CVSS 6.5

CWE-548

http://127.0.0.1:3000/ftp

HIGH

#### DESCRIPTION

Attackers can browse and enumerate every file in the /ftp directory without needing to guess filenames. The directory listing reveals 10 files including confidential business acquisition documents, an encrypted KeePass password database (incident-support.kdbx — 3.2 KB), Python source code (encrypt.pyc), and multiple backup files that may contain credentials or internal configuration.

#### CVSS VECTOR

CVSS:3.1/AV:N/AC:L/PR:N/UI:N/S:U/C:H/I:N/A:N

#### PROOF OF CONCEPT

```
curl -s http://127.0.0.1:3000/ftp | grep 'href'
```

Returns full directory listing with 10 files exposed:

#### EVIDENCE SCREENSHOT

```
Directory Listing on /ftp - 10 Files Exposed
$ curl -s http://127.0.0.1:3000/ftp | grep 'href'

$ curl -s http://127.0.0.1:3000/ftp | grep 'href'
<h1><a href=".">.</a> / <a href="ftp">ftp</a></h1>
<li><a href="ftp/quarantine">quarantine</a> (subdirectory)
<li><a href="ftp/acquisitions.md">acquisitions.md</a> 909 B [!]
<li><a href="ftp/announcement_encrypted.md">*.md</a> 369237 B
<li><a href="ftp/coupons_2013.md.bak">*.md.bak</a> 131 B
<li><a href="ftp/eastere.gg">eastere.gg</a> 324 B
<li><a href="ftp/encrypt.pyc">encrypt.pyc</a> 573 B
<li><a href="ftp/incident-support.kdbx">*.kdbx</a> 3246 B [!] KeePass DB
<li><a href="ftp/legal.md">legal.md</a> 3047 B
<li><a href="ftp/package-lock.json.bak">*.json.bak</a> 750353 B
<li><a href="ftp/package.json.bak">*.json.bak</a> 4263 B
<li><a href="ftp/suspicious_errors.yml">*.yml</a> 723 B

=== 10 FILES EXPOSED via directory listing ===
[!] acquisitions.md - confidential business document (publicly readable)
[!] incident-support.kdbx - KeePass password database (3.2 KB)
[!] encrypt.pyc - Python compiled bytecode (potentially reversible)
```

#### IMPACT

If exploited, sensitive data is fully exposed to unauthorized parties.

#### REMEDIATION

1. Disable directory listing. 2. Restrict /ftp to authenticated users. 3. Remove sensitive files from web-accessible directory. 4. Move files outside web root.

F-003 · DRAFT

Multi-tool confirmed

## Confidential Document Exposure

Medium

CVSS 6.5

CWE-200

http://127.0.0.1:3000/ftp/acquisitions.md

HIGH

#### DESCRIPTION

Attackers can download internal business strategy documents including planned company acquisitions, projected revenues, and strategic plans without any authentication. This enables corporate espionage, competitive intelligence gathering, and insider trading on pre-public acquisition targets directly from the acquisitions.md file.

#### CVSS VECTOR

CVSS:3.1/AV:N/AC:L/PR:N/UI:N/S:U/C:H/I:N/A:N

#### PROOF OF CONCEPT

```
curl http://127.0.0.1:3000/ftp/acquisitions.md
```

Returns 909-byte Markdown document titled '# Planned Acquisitions' with internal business strategy.

#### IMPACT

If exploited, sensitive data is fully exposed to unauthorized parties.

#### REMEDIATION

1. Immediately remove acquisitions.md from web-accessible directory. 2. Implement proper file access controls. 3. Audit /ftp for other sensitive files. 4. Move internal docs to secure storage.

F-004 · DRAFT

Multi-tool confirmed

## Missing Content-Security-Policy Header

Medium

CVSS 6.1

CWE-693

http://127.0.0.1:3000/

HIGH

#### DESCRIPTION

Attackers who discover any cross-site scripting vector can inject and execute arbitrary JavaScript in users' browsers with no restrictions, steal session tokens and authentication cookies, exfiltrate sensitive data to attacker-controlled servers, and perform any action as the victim user because no Content Security Policy restricts which scripts can execute, where data can be sent, or what external resources can be loaded.

#### CVSS VECTOR

CVSS:3.1/AV:N/AC:L/PR:N/UI:R/S:U/C:L/I:L/A:N

#### PROOF OF CONCEPT

```
curl -sI http://127.0.0.1:3000/ | grep -i content-security
```

No output – CSP header is completely absent.

#### IMPACT

If exploited, limited confidential information is disclosed; limited data tampering is possible.

#### REMEDIATION

1. Implement strict CSP: default-src 'self'; script-src 'self'; style-src 'self'.
2. Avoid unsafe-inline and unsafe-eval.
3. Use nonce-based CSP for inline scripts.
4. Test with Report-Only first.

F-005 · DRAFT

Multi-tool confirmed

## Exposed Prometheus Metrics

Medium

CVSS 5.3

CWE-200

http://127.0.0.1:3000/metrics

HIGH

### DESCRIPTION

Attackers can access detailed operational intelligence including request volumes, error rates, file upload statistics, LLM token usage, and 275 internal application metrics without any credentials. This enables precise attack surface profiling, sensitive data enumeration, and timing analysis to identify optimal exploitation windows.

### CVSS VECTOR

CVSS:3.1/AV:N/AC:L/PR:N/UI:N/S:U/C:L/I:N/A:N

### PROOF OF CONCEPT

```
curl -s http://127.0.0.1:3000/metrics | head -20
```

Returns operational metrics, request counts, and internal application statistics.

### EVIDENCE SCREENSHOT

```
┌ Exposed Prometheus /metrics - 275+ Metrics Leaked ────────────┐
│ $ curl -s http://127.0.0.1:3000/metrics | head -30              │
│                                                                    │
│ # HELP file_uploads_count Total successful file uploads          │
│ # TYPE file_uploads_count counter                                │
│                                                                    │
│ # HELP http_requests_count Total HTTP requests by status        │
│ # TYPE http_requests_count counter                              │
│ http_requests_count{status_code="2XX",app="juiceshop"} 6515     │
│ http_requests_count{status_code="5XX",app="juiceshop"} 309     │
│ http_requests_count{status_code="3XX",app="juiceshop"} 16      │
│ http_requests_count{status_code="4XX",app="juiceshop"} 5        │
│                                                                    │
│ # HELP juiceshop_llm_input_tokens_total Input tokens            │
│ # TYPE juiceshop_llm_input_tokens_total counter                │
│ juiceshop_llm_input_tokens_total{app="juiceshop"} 0            │
│                                                                    │
│ # HELP juiceshop_llm_output_tokens_total Output tokens          │
│ # TYPE juiceshop_llm_output_tokens_total counter               │
│ juiceshop_llm_output_tokens_total{app="juiceshop"} 0           │
│                                                                    │
│ # HELP juiceshop_llm_tool_calls_total Tool calls made           │
│ # TYPE juiceshop_llm_tool_calls_total counter                  │
│ juiceshop_llm_tool_calls_total{app="juiceshop"} 0              │
│                                                                    │
│ ... 275+ additional metrics exposed ...                          │
│                                                                    │
│ === 275+ OPERATIONAL METRICS EXPOSED WITHOUT AUTH ===          │
│ [!] 6515 successful HTTP requests profiled                       │
│ [!] 309 server errors (5XX) - error rate visible                 │
│ [!] LLM token usage metrics exposed                              │
│ [!] File upload counts and error rates visible                   │
│ [!] No authentication required to access /metrics endpoint      │
```

### IMPACT

If exploited, limited confidential information is disclosed.

#### REMEDIATION

1. Require authentication for /metrics endpoint.
2. Use reverse proxy with auth (nginx auth\_basic).
3. Bind metrics server to localhost only.
4. Set metrics.includeHttpMetrics: false in Juice Shop config.

F-006 · DRAFT

Multi-tool confirmed

## Swagger API Documentation Exposed

Medium

CVSS 5.3

CWE-200

<http://127.0.0.1:3000/api-docs/>

HIGH

#### DESCRIPTION

Attackers gain a complete interactive map of the entire REST API — all endpoints, request/response schemas, authentication mechanisms, and parameters — through the publicly accessible Swagger UI. This provides a methodical exploitation blueprint, letting attackers probe every API function without trial-and-error guessing and identify the most valuable targets.

#### CVSS VECTOR

CVSS:3.1/AV:N/AC:L/PR:N/UI:N/S:U/C:L/I:N/A:N

#### PROOF OF CONCEPT

```
curl -s http://127.0.0.1:3000/api-docs/swagger.json
```

Returns full OpenAPI specification with all API endpoints documented.

#### IMPACT

If exploited, limited confidential information is disclosed.

#### REMEDIATION

1. Disable Swagger UI in production.
2. Restrict /api-docs/ to authenticated admins.
3. Remove sensitive endpoint docs from public Swagger spec.

F-007 · DRAFT

Multi-tool confirmed

## Score Board Exposed Without Authentication

Medium

CVSS 5.3

CWE-200

<http://127.0.0.1:3000/#/score-board>

HIGH

#### DESCRIPTION

Attackers gain a complete exploitation roadmap for the application: a searchable catalog of 178 challenges organized by vulnerability category (Broken Access Control, XSS, Injection, Sensitive Data Exposure, Security Misconfiguration, and 9 more

categories) with names, difficulty ratings, and solution hints — letting attackers systematically exploit every intended vulnerability without reconnaissance effort.

#### CVSS VECTOR

CVSS:3.1/AV:N/AC:L/PR:N/UI:N/S:U/C:L/I:N/A:N

#### PROOF OF CONCEPT

```
Navigate to http://127.0.0.1:3000/#/score-board
Shows full challenge catalog: 27 Broken Access Control, 28 XSS, 47 Injection, 28
Sensitive Data Exposure, 25 Security Misconfiguration, plus 9 more categories.
```

#### IMPACT

If exploited, limited confidential information is disclosed.

#### REMEDIATION

1. Require admin authentication for Score Board. 2. Hide challenge details from unauthenticated users. 3. Use separate admin interface. 4. Implement rate limiting on challenge endpoints.

F-008 · DRAFT

Multi-tool confirmed

## Overly Permissive CORS Configuration

Medium

CVSS 5.3

CWE-942

http://127.0.0.1:3000/

HIGH

#### DESCRIPTION

Attackers operating malicious websites can make cross-origin API requests to the application from any domain and read unauthenticated API responses, bypassing the browser's same-origin policy. While authenticated requests are blocked (no Access-Control-Allow-Credentials), attackers can still enumerate public API data, perform unauthenticated operations, and conduct information-gathering attacks from any origin.

#### CVSS VECTOR

CVSS:3.1/AV:N/AC:L/PR:N/UI:N/S:U/C:L/I:N/A:N

#### PROOF OF CONCEPT

```
curl -X OPTIONS -D- http://127.0.0.1:3000/api/Challenges/

Returns:
Access-Control-Allow-Origin: *
Access-Control-Allow-Methods: GET,HEAD,PUT,PATCH,POST,DELETE
```

#### EVIDENCE SCREENSHOT

```
Overly Permissive CORS - OPTIONS preflight
$ curl -X OPTIONS -D- http://127.0.0.1:3000/api/Challenges/

HTTP/1.1 204 No Content
Access-Control-Allow-Origin: *
Access-Control-Allow-Methods: GET,HEAD,PUT,PATCH,POST,DELETE
Vary: Access-Control-Request-Headers
Content-Length: 0
Date: Fri, 26 Jun 2026 09:19:20 GMT
Connection: keep-alive
Keep-Alive: timeout=5

[!] CORS allows ANY origin (*) - all HTTP methods exposed
[!] No origin restriction - any website can make cross-origin requests
```

**IMPACT**

If exploited, limited confidential information is disclosed.

**REMEDIATION**

- 1. Never use Access-Control-Allow-Origin: \*
- 2. Specify exact allowed origins.
- 3. Restrict allowed methods to minimum required.
- 4. Implement proper preflight validation.
- 5. Use Access-Control-Allow-Credentials only with specific origins.

F-009 · DRAFT

Multi-tool confirmed

### Deprecated Feature-Policy Instead of Permissions-Policy

Medium CVSS 4.3 CWE-693 http://127.0.0.1:3000/ HIGH

**DESCRIPTION**

Attackers exploiting any content injection vulnerability gain access to users' camera, microphone, geolocation, and other sensitive browser APIs because only the payment API is restricted. The deprecated Feature-Policy header provides no protection in modern browsers, allowing attackers to spy on users through device sensors and capture audio/video without detection.

**CVSS VECTOR**

CVSS:3.1/AV:N/AC:L/PR:N/UI:R/S:U/C:N/I:L/A:N

**PROOF OF CONCEPT**

```
curl -sI http://127.0.0.1:3000/ | grep Feature
Returns: Feature-Policy: payment 'self'
No Permissions-Policy header present.
```

**IMPACT**

If exploited, limited data tampering is possible.

**REMEDIATION**

- 1. Replace with Permissions-Policy header.
- 2. Define comprehensive policy: camera=(), microphone=(), geolocation=(), payment=(self).
- 3. Restrict all sensitive browser features by default.

F-010 · DRAFT

Multi-tool confirmed

## Missing Strict-Transport-Security Header

Low

CVSS 3.7

CWE-319

http://127.0.0.1:3000/

HIGH

### DESCRIPTION

Attackers positioned to intercept network traffic through ARP spoofing, rogue access points, or compromised routers can exploit the absence of HSTS to downgrade connections to plain HTTP, strip any future TLS, and intercept or modify traffic between users and the application without the browser displaying security warnings. Combined with no HTTPS deployment, all traffic is vulnerable to passive eavesdropping.

### CVSS VECTOR

CVSS:3.1/AV:N/AC:H/PR:N/UI:N/S:U/C:L/I:N/A:N

### PROOF OF CONCEPT

```
curl -sI http://127.0.0.1:3000/ | grep -i strict-transport
```

No output – HSTS header is completely absent.

### IMPACT

If exploited, limited confidential information is disclosed.

### REMEDIATION

1. Enable HTTPS with TLS certificate. 2. Add header: Strict-Transport-Security: max-age=31536000; includeSubDomains; preload. 3. Redirect all HTTP to HTTPS (301).

F-011 · DRAFT

Multi-tool confirmed

## Missing Referrer-Policy Header

Low

CVSS 3.1

CWE-200

http://127.0.0.1:3000/

HIGH

### DESCRIPTION

Attackers can exfiltrate sensitive data embedded in URLs through the Referrer header when users navigate from the application to any external site. Session tokens, password reset codes, search queries, and internal navigation state in URL parameters leak to third-party analytics platforms, advertising networks, and hostile domains, enabling session hijacking and disclosure of sensitive user activity.

### CVSS VECTOR

CVSS:3.1/AV:N/AC:H/PR:N/UI:R/S:U/C:L/I:N/A:N

### PROOF OF CONCEPT

```
curl -sI http://127.0.0.1:3000/ | grep -i referrer
```

No output – Referrer-Policy header is absent.

### IMPACT

If exploited, limited confidential information is disclosed.

## REMEDIATION

1. Add Referrer-Policy: strict-origin-when-cross-origin or no-referrer. 2. Never pass sensitive data in URL parameters. 3. Use POST for sensitive data transmission.

F-012 · DRAFT

Single tool, awaiting review

## X-Recruiting Header Information Leak

Low

CVSS 3.1

CWE-200

http://127.0.0.1:3000/

MEDIUM

### DESCRIPTION

Attackers can fingerprint the application's internal technology stack and organizational structure through custom HTTP headers that reveal internal application paths and technology choices, accelerating reconnaissance by reducing the effort required to identify and target vulnerable components and map the application's internal architecture.

### CVSS VECTOR

CVSS:3.1/AV:N/AC:H/PR:N/UI:N/S:U/C:L/I:N/A:N

### PROOF OF CONCEPT

```
curl -sI http://127.0.0.1:3000/ | grep X-Recruiting
```

Returns: X-Recruiting: /#/jobs

### IMPACT

If exploited, limited confidential information is disclosed.

### REMEDIATION

Remove X-Recruiting header or replace with full external URL. Avoid revealing internal path structures in HTTP headers.

F-013 · DRAFT

Single tool, awaiting review

## robots.txt Reveals Sensitive Directory

Low

CVSS 3.1

CWE-200

http://127.0.0.1:3000/robots.txt

MEDIUM

### DESCRIPTION

Attackers who retrieve robots.txt immediately discover the /ftp directory containing sensitive files such as acquisitions.md, incident-support.kdbx, and backup source code. The Disallow directive acts as a directory index for restricted paths, effectively directing attackers to the exact locations the application operators attempted to hide.

### CVSS VECTOR

CVSS:3.1/AV:N/AC:H/PR:N/UI:N/S:U/C:L/I:N/A:N

### PROOF OF CONCEPT

```
curl http://127.0.0.1:3000/robots.txt
```

```
Returns: User-agent: *  
Disallow: /ftp
```

#### IMPACT

If exploited, limited confidential information is disclosed.

#### REMEDIATION

Remove /ftp Disallow from robots.txt. Implement proper access controls instead of relying on robots.txt for security.

F-014 · DRAFT

Single tool, awaiting review

## Application Fingerprinting via Headers

Low

CVSS 3.1

CWE-200

http://127.0.0.1:3000/

MEDIUM

#### DESCRIPTION

Attackers can precisely identify the application as OWASP Juice Shop v20.0.0 by Bjoern Kimminich through detailed HTTP headers (ETag, Accept-Ranges) and HTML source comments containing copyright statements. This enables targeted exploitation of version-specific vulnerabilities, matching of known CVEs, and use of Juice Shop-specific attack tools without any reconnaissance trial-and-error.

#### CVSS VECTOR

CVSS:3.1/AV:N/AC:H/PR:N/UI:N/S:U/C:L/I:N/A:N

#### PROOF OF CONCEPT

```
curl -sI http://127.0.0.1:3000/  
Headers reveal: Accept-Ranges, ETag, Feature-Policy, X-Recruiting.  
HTML reveals:
```

#### IMPACT

If exploited, limited confidential information is disclosed.

#### REMEDIATION

1. Remove/obfuscate version info from headers.
2. Remove copyright comments from production HTML.
3. Set generic Server header.
4. Disable verbose error messages.

# 04

## Observed Controls

CONTROL	STATUS	VALUE
TLS	Fail	No HTTPS — plain HTTP only on port 3000
HSTS	Fail	Strict-Transport-Security header absent
Content-Security-Policy	Fail	Content-Security-Policy header absent
X-Frame-Options	Pass	SAMEORIGIN — prevents clickjacking
X-Content-Type-Options	Pass	nosniff — MIME sniffing blocked
Referrer-Policy	Fail	Header absent — full URLs leaked to third parties
Permissions-Policy	Fail	Only deprecated Feature-Policy: payment present
Clickjacking Protection	Pass	X-Frame-Options: SAMEORIGIN set
SPF	Warn	v=spf1 ~all (softfail) — neutral protection
DMARC	Warn	p=none — monitoring only, no enforcement
Cloudflare WAF/CDN	Warn	No CDN/WAF detected — direct Node.js exposure
Non-CDN Port Exposure	Pass	Only port 3000 exposed
security.txt	Pass	Present at /.well-known/security.txt
Directory Listing	Fail	/ftp directory listing enabled — 10 files exposed
HTTP to HTTPS Redirect	Fail	No redirect — plain HTTP only
AI Crawler Blocking	Pass	robots.txt present, all AI crawlers blocked

### Findings Heatmap

CATEGORY	CRITICAL	HIGH	MEDIUM	LOW	INFO	TOTAL
Information Disclosure	0	0	3	1	0	4
Exposed Interfaces	0	0	2	2	0	4
Security Headers	0	0	2	1	0	3
Transport Security	0	1	0	0	0	1
Access Control	0	0	1	0	0	1

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Other	0	0	0	1	0	<b>1</b>
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# 05

## Positive Observations

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- ✓ X-Content-Type-Options: nosniff prevents MIME type sniffing attacks
  - ✓ X-Frame-Options: SAMEORIGIN provides clickjacking protection
  - ✓ security.txt present at both standard locations (RFC 9116 compliance)
  - ✓ robots.txt present for crawler management
  - ✓ Only single port (3000) exposed — no unnecessary service exposure
  - ✓ Application responds quickly and handles concurrent requests well
  - ✓ API uses consistent JSON response format with status indicators
-

# 06

## Remediation Checklist

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**Severity timeframes:** Critical — immediate | High — this week | Medium — within 30 days | Low — next maintenance cycle

**HIGH**

**F-001: No HTTPS / Plain HTTP Only**

1. Obtain TLS certificate. 2. Configure HTTPS. 3. Implement HTTP-to-HTTPS 301 redirect. 4. Enable HSTS. 5. Disable plain...

---

**MEDI**

**F-002: Directory Listing on /ftp**

1. Disable directory listing. 2. Restrict /ftp to authenticated users. 3. Remove sensitive files from web-accessible dir...

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**MEDI**

**F-003: Confidential Document Exposure**

1. Immediately remove acquisitions.md from web-accessible directory. 2. Implement proper file access controls. 3. Audit ...

---

**MEDI**

**F-004: Missing Content-Security-Policy Header**

1. Implement strict CSP: default-src 'self'; script-src 'self'; style-src 'self'. 2. Avoid unsafe-inline and unsafe-eval...

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**MEDI**

**F-005: Exposed Prometheus Metrics**

1. Require authentication for /metrics endpoint. 2. Use reverse proxy with auth (nginx auth\_basic). 3. Bind metrics serv...

---

**MEDI**

**F-006: Swagger API Documentation Exposed**

1. Disable Swagger UI in production. 2. Restrict /api-docs/ to authenticated admins. 3. Remove sensitive endpoint docs f...

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**MEDI**

**F-007: Score Board Exposed Without Authentication**

1. Require admin authentication for Score Board. 2. Hide challenge details from unauthenticated users. 3. Use separate a...

---

**MEDI**

**F-008: Overly Permissive CORS Configuration**

1. Never use Access-Control-Allow-Origin: \*. 2. Specify exact allowed origins. 3. Restrict allowed methods to minimum re...

---

**MEDI**

**F-009: Deprecated Feature-Policy Instead of Permissions-Policy**

1. Replace with Permissions-Policy header. 2. Define comprehensive policy: camera=(), microphone=(), geolocation=(), pay...

---

**LOW**

**F-010: Missing Strict-Transport-Security Header**

1. Enable HTTPS with TLS certificate. 2. Add header: Strict-Transport-Security: max-age=31536000; includeSubDomains; pre...

---

**LOW**

**F-011: Missing Referrer-Policy Header**

1. Add Referrer-Policy: strict-origin-when-cross-origin or no-referrer. 2. Never pass sensitive data in URL parameters. ...

---

**LOW**

**F-012: X-Recruiting Header Information Leak**

Remove X-Recruiting header or replace with full external URL. Avoid revealing internal path structures in HTTP headers...

---

**LOW**

**F-013: robots.txt Reveals Sensitive Directory**

Remove /ftp Disallow from robots.txt. Implement proper access controls instead of relying on robots.txt for security...

---

**LOW**

**F-014: Application Fingerprinting via Headers**

1. Remove/obfuscate version info from headers. 2. Remove copyright comments from production HTML. 3. Set generic Server ...

---

# 07

## Appendix

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### Scan Output

```
Port 3000/tcp open – OWASP Juice Shop HTTP server (Node.js). Headers: Access-Control-Allow-Origin: *, X-Content-Type-Options: nosniff, X-Frame-Options: SAMEORIGIN, Feature-Policy: payment 'self', X-Recruiting: /#/jobs, Accept-Ranges: bytes, Cache-Control: public/max-age=0, ETag versioned. OPTIONS returns 204 with CORS: GET,HEAD,PUT,PATCH,POST,DELETE.
```

### Automated Scan Summary

```
2 matches: swagger-api at /api-docs/swagger.yaml (info), prometheus-metrics at /metrics (medium). Additional: http-missing-security-headers (cross-origin-opener-policy, cross-origin-resource-policy) – info level. Full results in scans/nuclei-juice-shop.jsonl.
```

### Tool Screenshots

**7 screenshots** captured during testing. Directory: `engagements/juice-shop-benchmark/screenshots/`

#	FILENAME
1	F-001-no-https-plain-http.png
2	F-002-directory-listing-ftp.png
3	F-005-exposed-prometheus-metrics.png
4	F-008-overly-permissive-cors.png
5	ftp-directory.png
6	metrics-endpoint.png
7	score-board.png

### Glossary

**CVSS** Common Vulnerability Scoring System

**CWE** Common Weakness Enumeration

**PTES** Penetration Testing Execution Standard

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# 08

## Expert Review — Close the Loop on Each Claim

Until this page is signed, this document is **triage output**, not a final report. Each finding must be reviewed, verified against ground truth, and either confirmed or marked as a false positive. Only findings marked **CONFIRMED** represent actionable vulnerabilities.

ID	FINDING	CONFIDENCE	STATUS	VERIFIED BY	NOTES
F-001	No HTTPS / Plain HTTP Only	Multi-tool confirmed	DRAFT	_____	_____
F-002	Directory Listing on /ftp	Multi-tool confirmed	DRAFT	_____	_____
F-003	Confidential Document Exposure	Multi-tool confirmed	DRAFT	_____	_____
F-004	Missing Content-Security-Policy Header	Multi-tool confirmed	DRAFT	_____	_____
F-005	Exposed Prometheus Metrics	Multi-tool confirmed	DRAFT	_____	_____
F-006	Swagger API Documentation Exposed	Multi-tool confirmed	DRAFT	_____	_____
F-007	Score Board Exposed Without Authentication	Multi-tool confirmed	DRAFT	_____	_____
F-008	Overly Permissive CORS Configuration	Multi-tool confirmed	DRAFT	_____	_____
F-009	Deprecated Feature-Policy Instead of Permissions-Policy	Multi-tool confirmed	DRAFT	_____	_____
F-010	Missing Strict-Transport-Security Header	Multi-tool confirmed	DRAFT	_____	_____
F-011	Missing Referrer-Policy Header	Multi-tool confirmed	DRAFT	_____	_____
F-012			DRAFT	_____	_____

	X-Recruiting Header Information Leak	Single tool, awaiting review			
<b>F-013</b>	robots.txt Reveals Sensitive Directory	Single tool, awaiting review	<b>DRAFT</b>	_____	_____
<b>F-014</b>	Application Fingerprinting via Headers	Single tool, awaiting review	<b>DRAFT</b>	_____	_____

**Review workflow:** DRAFT → REVIEWED (expert checks) → CONFIRMED (verified) or FALSE\_POSITIVE (dismissed). All findings ship as **DRAFT** by default. The reviewer signs off by updating each row.

**Reviewer signature:** \_\_\_\_\_

Date: \_\_\_\_\_



# OWASP Juice Shop (Benchmark)

OWA-SEC-2026-177 · 2026-06-26

Confidential · Prepared by Hermes Pentest Agent

