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BlinkLab Dx1 — Software Bill of Materials

1. Purpose

This document is the human-readable summary of the Dx1 Software Bill of Materials (SBOM). The machine-readable CycloneDX 1.5 JSON form is `BlinkLab-SBOM.cdx.json` and is the authoritative artefact; this summary prints the same component inventory as a table sorted by source.

The SBOM is prepared in accordance with Section II.C of the FDA Cybersecurity in Medical Devices guidance (February 2026) and Section 524B of the Federal Food, Drug, and Cosmetic Act, which require a Software Bill of Materials for cyber devices. The current SBOM version is published continuously at <https://cdn.blinklab.org/SBOM> in machine-readable CycloneDX 1.5 format alongside this human-readable summary; the page is refreshed on every Dx1 release and on every dependency-graph change.

2. Scope

The SBOM enumerates production software components shipped as part of BlinkLab Dx1, categorised as follows:

- *Manufacturer-developed components: the BlinkLab-authored applications (Dx1-Platform, Dx1-mobile-application, Dx1-prediction-module).*
- *Third-party components: every transitive dependency pulled in via the language package managers used by the manufacturer-developed components.*

Development-only dependencies (testing frameworks, linters, build helpers that do not ship with the production artefact) are deliberately excluded. The exclusion follows from the Section II.C scope of the SBOM, which targets shipped software.

Internal third-party services consumed by Dx1 at runtime (Auth0 tenant, Sentry tenant, AWS managed services, the Apple Developer Program) are not enumerated here as software components — their internal software inventories are opaque to BlinkLab.

3. Source files

- `Dx1-Platform/composer.lock` — PHP / Symfony backend (Composer)
- `Dx1-mobile-application/.../Package.resolved` — iOS / Swift Package Manager
- `Dx1-Platform/importmap.php` — frontend AssetMapper importmap (CDN-fetched JS deps)

4. Per-component metadata

For every third-party component the CycloneDX JSON carries: name, version, supplier, license, package URL (purl), source repository URL, distribution URL where applicable, and a SHA-1 hash. The component lifecycle status (actively-maintained / unmaintained / abandoned) and the end-of-support date are recorded as custom CycloneDX properties under the blinklab:lifecycle:* namespace.

Component vulnerability state is not embedded inline because the CVE/NVD landscape changes faster than this document. Each component carries an externalReferences entry of type advisories pointing at a live NIST NVD search URL, so a reviewer or operator can resolve the current vulnerability state on demand.

5. Component statistics

Category

Manufacturer-developed (BlinkLab)

Third-party PHP (Composer)

Third-party Swift (SPM)

Third-party JavaScript (AssetMapper importmap)

Third-party JavaScript (npm — added from GitHub dependency-graph)

Third-party Python (PyPI — Dx1-prediction-module)

Total

6. Manufacturer-developed components

Name	Version	License	Supplier	Lifecycle status
Dx1-Platform	TBD-RELEASE	Proprietary — BlinkLab	BlinkLab	actively-maintained
Dx1-mobile-application	TBD-RELEASE	Proprietary — BlinkLab	BlinkLab	actively-maintained
Dx1-prediction-module	TBD-RELEASE	Proprietary — BlinkLab	BlinkLab	actively-maintained

7. Third-party PHP components (Composer)

Name	Version	License	Supplier	Lifecycle status
async-aws/core	1.29.0	MIT	async-aws	actively-maintained
async-aws/ses	1.15.0	MIT	async-aws	actively-maintained
auth0/auth0-php	8.19.0	MIT	auth0	actively-maintained
auth0/symfony	5.8.0	MIT	auth0	actively-maintained

aws/aws-crt-php	v1.2.7	Apache-2.0	aws	actively-maintained
aws/aws-sdk-php	3.386.1	Apache-2.0	aws	actively-maintained
brick/math	0.17.2	MIT	brick	actively-maintained
composer/semver	3.4.4	MIT	composer	actively-maintained
doctrine/collections	2.6.0	MIT	doctrine	actively-maintained
doctrine/dbal	4.4.3	MIT	doctrine	actively-maintained
doctrine/deprecations	1.1.6	MIT	doctrine	actively-maintained
doctrine/doctrine-bundle	3.2.4	MIT	doctrine	actively-maintained
doctrine/doctrine-migrations-bundle	4.0.0	MIT	doctrine	actively-maintained
doctrine/event-manager	2.1.1	MIT	doctrine	actively-maintained
doctrine/inflector	2.1.0	MIT	doctrine	actively-maintained
doctrine/instantiator	2.1.0	MIT	doctrine	actively-maintained
doctrine/lexer	3.0.1	MIT	doctrine	potentially-unmaintained
doctrine/migrations	3.9.7	MIT	doctrine	actively-maintained
doctrine/orm	3.6.7	MIT	doctrine	actively-maintained
doctrine/persistence	4.2.0	MIT	doctrine	actively-maintained
doctrine/sql-formatter	1.5.4	MIT	doctrine	actively-maintained
egulias/email-validator	4.0.4	MIT	egulias	actively-maintained
firebase/php-jwt	v7.1.0	BSD-3-Clause	firebase	actively-maintained

guzzlehttp/ guzzle	7.12.3	MIT	guzzlehttp	actively- maintained
guzzlehttp/ promises	2.5.0	MIT	guzzlehttp	actively- maintained
guzzlehttp/ psr7	2.12.3	MIT	guzzlehttp	actively- maintained
jean85/pretty- package- versions	2.1.1	MIT	jean85	actively- maintained
monolog/ monolog	3.10.0	MIT	monolog	actively- maintained
mt Dowling/ jmespath.php	2.9.1	MIT	mt Dowling	actively- maintained
php-http/ discovery	1.20.0	MIT	php-http	actively- maintained
php-http/ multipart- stream-builder	1.4.2	MIT	php-http	actively- maintained
phpdocumento r/reflection- common	2.2.0	MIT	phpdocumento r	potentially- unmaintained
phpdocumento r/reflection- docblock	6.0.3	MIT	phpdocumento r	actively- maintained
phpdocumento r/type-resolver	2.0.0	MIT	phpdocumento r	actively- maintained
phpstan/ phpdoc-parser	2.3.2	MIT	phpstan	actively- maintained
psr-discovery/ all	1.2.0	MIT	psr-discovery	actively- maintained
psr-discovery/ cache- implementations	1.2.0	MIT	psr-discovery	actively- maintained
psr-discovery/ container- implementations	1.2.0	MIT	psr-discovery	actively- maintained
psr- discovery/ discovery	1.2.0	MIT	psr-discovery	actively- maintained

psr-discovery/ event- dispatcher- implementations	1.2.0	MIT	psr-discovery	actively-maintained
psr-discovery/http-client-implementations	v1.5.0	MIT	psr-discovery	actively-maintained
psr-discovery/http-factory-implementations	1.2.0	MIT	psr-discovery	actively-maintained
psr-discovery/log-implementations	1.1.0	MIT	psr-discovery	actively-maintained
psr/cache	3.0.0	MIT	psr	potentially-unmaintained
psr/clock	1.0.0	MIT	psr	potentially-unmaintained
psr/container	2.0.2	MIT	psr	potentially-unmaintained
psr/event-dispatcher	1.0.0	MIT	psr	potentially-unmaintained
psr/http-client	1.0.3	MIT	psr	potentially-unmaintained
psr/http-factory	1.1.0	MIT	psr	potentially-unmaintained
psr/http-message	2.0	MIT	psr	potentially-unmaintained
psr/log	3.0.2	MIT	psr	actively-maintained
ralouphie/getallheaders	3.0.3	MIT	ralouphie	potentially-unmaintained
sensiolabs/typescript-bundle	v0.2.2	MIT	sensiolabs	actively-maintained
sentry/sentry	4.28.0	MIT	sentry	actively-maintained

sentry/sentry-symfony	5.10.0	MIT	sentry	actively-maintained
spomky-labs/cbor-php	3.2.3	MIT	spomky-labs	actively-maintained
symfony/amazon-mailer	v7.4.6	MIT	symfony	actively-maintained
symfony/asset	v7.4.8	MIT	symfony	actively-maintained
symfony/asset-mapper	v7.4.14	MIT	symfony	actively-maintained
symfony/cache	v7.4.14	MIT	symfony	actively-maintained
symfony/cache-contracts	v3.7.1	MIT	symfony	actively-maintained
symfony/clock	v7.4.8	MIT	symfony	actively-maintained
symfony/config	v7.4.14	MIT	symfony	actively-maintained
symfony/console	v7.4.14	MIT	symfony	actively-maintained
symfony/dependency-injection	v7.4.14	MIT	symfony	actively-maintained
symfony/deprecation-contracts	v3.7.1	MIT	symfony	actively-maintained
symfony/doctrine-bridge	v7.4.14	MIT	symfony	actively-maintained
symfony/dotenv	v7.4.14	MIT	symfony	actively-maintained
symfony/error-handler	v7.4.14	MIT	symfony	actively-maintained
symfony/event-dispatcher	v7.4.14	MIT	symfony	actively-maintained
symfony/event-dispatcher-contracts	v3.7.1	MIT	symfony	actively-maintained
symfony/filesystem	v7.4.11	MIT	symfony	actively-maintained
symfony/finder	v7.4.14	MIT	symfony	actively-maintained

symfony/flex	v2.11.0	MIT	symfony	actively-maintained
symfony/form	v7.4.14	MIT	symfony	actively-maintained
symfony/ framework- bundle	v7.4.14	MIT	symfony	actively-maintained
symfony/http- client	v7.4.14	MIT	symfony	actively-maintained
symfony/http- client-contracts	v3.7.1	MIT	symfony	actively-maintained
symfony/http- foundation	v7.4.14	MIT	symfony	actively-maintained
symfony/http- kernel	v7.4.14	MIT	symfony	actively-maintained
symfony/ mailer	v7.4.14	MIT	symfony	actively-maintained
symfony/mime	v7.4.13	MIT	symfony	actively-maintained
symfony/ monolog-bridge	v7.4.12	MIT	symfony	actively-maintained
symfony/ monolog- bundle	v4.0.2	MIT	symfony	actively-maintained
symfony/ options- resolver	v7.4.8	MIT	symfony	actively-maintained
symfony/ password- hasher	v7.4.8	MIT	symfony	actively-maintained
symfony/ polyfill-intl- grapheme	v1.38.1	MIT	symfony	actively-maintained
symfony/ polyfill-intl-icu	v1.38.0	MIT	symfony	actively-maintained
symfony/ polyfill-intl-idn	v1.38.1	MIT	symfony	actively-maintained
symfony/ polyfill-intl- normalizer	v1.38.0	MIT	symfony	actively-maintained
symfony/	v1.38.2	MIT	symfony	actively-

polyfill- mbstring					maintained
symfony/ polyfill-php83	v1.38.2	MIT	symfony		actively- maintained
symfony/ polyfill-php84	v1.38.1	MIT	symfony		actively- maintained
symfony/ polyfill-php85	v1.38.1	MIT	symfony		actively- maintained
symfony/ polyfill-uuid	v1.37.0	MIT	symfony		actively- maintained
symfony/ process	v7.4.13	MIT	symfony		actively- maintained
symfony/ property-access	v7.4.8	MIT	symfony		actively- maintained
symfony/ property-info	v7.4.8	MIT	symfony		actively- maintained
symfony/psr- http-message- bridge	v7.4.8	MIT	symfony		actively- maintained
symfony/rate- limiter	v7.4.14	MIT	symfony		actively- maintained
symfony/ routing	v7.4.13	MIT	symfony		actively- maintained
symfony/ runtime	v7.4.14	MIT	symfony		actively- maintained
symfony/ security-bundle	v7.4.14	MIT	symfony		actively- maintained
symfony/ security-core	v7.4.14	MIT	symfony		actively- maintained
symfony/ security-csrf	v7.4.8	MIT	symfony		actively- maintained
symfony/ security-http	v7.4.14	MIT	symfony		actively- maintained
symfony/ serializer	v7.4.14	MIT	symfony		actively- maintained
symfony/ service- contracts	v3.7.1	MIT	symfony		actively- maintained
symfony/ stimulus- bundle	v2.36.0	MIT	symfony		actively- maintained

symfony/ stopwatch	v7.4.8	MIT	symfony	actively- maintained
symfony/string	v7.4.13	MIT	symfony	actively- maintained
symfony/ translation	v7.4.14	MIT	symfony	actively- maintained
symfony/ translation- contracts	v3.7.1	MIT	symfony	actively- maintained
symfony/twig- bridge	v7.4.14	MIT	symfony	actively- maintained
symfony/twig- bundle	v7.4.14	MIT	symfony	actively- maintained
symfony/type- info	v7.4.9	MIT	symfony	actively- maintained
symfony/uid	v7.4.9	MIT	symfony	actively- maintained
symfony/ validator	v7.4.14	MIT	symfony	actively- maintained
symfony/var- dumper	v7.4.14	MIT	symfony	actively- maintained
symfony/var- exporter	v7.4.14	MIT	symfony	actively- maintained
symfony/ workflow	v7.4.9	MIT	symfony	actively- maintained
symfony/yaml	v7.4.14	MIT	symfony	actively- maintained
twig/twig	v3.27.1	BSD-3-Clause	twig	actively- maintained
webmozart/ assert	2.4.1	MIT	webmozart	actively- maintained

8. Third-party Swift components (SPM)

Name

iqkeyboardmanager
lbbottomsheet
sentry-cocoa
snapkit

9. Third-party JavaScript components (AssetMapper importmap)

Name	Version	License	Supplier	Lifecycle status
@fontsource/ figtree/ index.min.css	5.2.10	OFL-1.1	fontsource	actively-maintained
@hotwired/ stimulus	3.2.2	MIT	hotwired	potentially-unmaintained
@popperjs/ core	2.11.8	MIT	popperjs	potentially-unmaintained
@sentry- internal/ browser-utils	10.57.0	MIT	sentry-internal	actively-maintained
@sentry- internal/ feedback	10.57.0	MIT	sentry-internal	actively-maintained
@sentry- internal/replay	10.57.0	MIT	sentry-internal	actively-maintained
@sentry- internal/ replay-canvas	10.57.0	MIT	sentry-internal	actively-maintained
@sentry/ browser	10.57.0	MIT	sentry	actively-maintained
@sentry/core	10.57.0	MIT	sentry	actively-maintained
@sentry/ core/browser	10.57.0	MIT	sentry	actively-maintained
bootstrap	5.3.8	MIT	bootstrap	actively-maintained
bootstrap/ dist/css/ bootstrap.min.c ss	5.3.8	MIT	bootstrap/ dist/css/ bootstrap.min.c ss	actively-maintained
datatables.net	3.0.0-beta.2	MIT	datatables.net	actively-maintained
datatables.net- bs5	3.0.0-beta.2	MIT	datatables.net- bs5	actively-maintained
datatables.net- bs5/css/ dataTables.boot strap5.min.css	3.0.0-beta.2	MIT	datatables.net- bs5/css/ dataTables.boot strap5.min.css	actively-maintained
stimulus-	0.1.3	MIT	stimulus-	potentially-

typescript

typescript

unmaintained

9b. Third-party JavaScript components (added from GitHub dependency-graph)

These components were not in the AssetMapper importmap but were surfaced by GitHub's dependency-graph parse of package.json. Each needs a one-time review to confirm whether it ships with the production artefact or is dev-only.

Name

9c. Third-party Python components (Dx1-prediction-module)

These components are dependencies of the BlinkLab data processing / ASD-prediction service (Dx1-prediction-module). The inventory is sourced from GitHub's dependency-graph SPDX export.

Name	Version	License	Supplier	Lifecycle status
absl-py	2.4.0	Apache-2.0	absl-py	actively-maintained
annotated-types	0.7.0	(see source repo)	annotated-types	potentially-unmaintained
anyio	4.13.0	MIT	anyio	actively-maintained
attrs	26.1.0	MIT	attrs	actively-maintained
boto3	1.43.22	Apache-2.0	boto3	actively-maintained
botocore	1.43.22	Apache-2.0	botocore	actively-maintained
certifi	2026.5.20	MPL-2.0	certifi	actively-maintained
cffib	2.0.0	MIT	cffib	actively-maintained
contourpy	1.3.3	BSD 3-Clause License		

Copyright (c) 2021-2 | contourpy | actively-maintained |

cycler | 0.12.1 | Copyright (c) 2015, matplotlib project All rights reserved. | cycler | potentially-unmaintained |

ffmpeg-python | 0.2.0 | (see source repo) | ffmpeg-python | potentially-unmaintained |

filelock | 3.29.0 | MIT | filelock | actively-maintained |

flatbuffers | 25.12.19 | Apache 2.0 | flatbuffers | actively-maintained |

fonttools | 4.63.0 | MIT | fonttools | actively-maintained |

fsspec | 2026.4.0 | BSD-3-Clause | fsspec | actively-maintained |

future | 1.0.0 | MIT | future | potentially-unmaintained |
h11 | 0.16.0 | MIT | h11 | actively-maintained |
httpcore | 1.0.9 | BSD-3-Clause | httpcore | actively-maintained |
httpx | 0.28.1 | BSD-3-Clause | httpx | actively-maintained |
idna | 3.18 | BSD-3-Clause | idna | actively-maintained |
imageio | 2.37.3 | BSD-2-Clause | imageio | actively-maintained |
jax | 0.10.1 | Apache-2.0 | jax | actively-maintained |
jaxlib | 0.10.1 | Apache-2.0 | jaxlib | actively-maintained |
jinja2 | 3.1.6 | (see source repo) | jinja2 | actively-maintained |
jmespath | 1.1.0 | MIT | jmespath | actively-maintained |
joblib | 1.5.3 | BSD-3-Clause | joblib | actively-maintained |
kiwisolver | 1.5.0 | ===== The Kiwi licensing terms | kiwisolver |
actively-maintained |
kornia | 0.8.0 | Apache-2.0 | kornia | actively-maintained |
kornia-rs | 0.1.14 | (see source repo) | kornia-rs | actively-maintained |
lazy-loader | 0.5 | BSD-3-Clause | lazy-loader | actively-maintained |
markupsafe | 3.0.3 | BSD-3-Clause | markupsafe | actively-maintained |
matplotlib | 3.10.9 | License agreement for matplotlib versions 1.3.0 and later | matplotlib |
actively-maintained |
mediapipe | 0.10.14 | Apache 2.0 | mediapipe | actively-maintained |
ml-dtypes | 0.5.4 | Apache-2.0 | ml-dtypes | actively-maintained |
mpmath | 1.3.0 | BSD-3-Clause | mpmath | actively-maintained |
networkx | 3.6.1 | BSD-3-Clause | networkx | actively-maintained |
numpy | 2.2.6 | BSD-3-Clause AND OBSD AND MIT AND Zlib AND CC0-1.0 | numpy |
actively-maintained |
nvidia-nccl-cu12 | 2.30.4 | (see source repo) | nvidia-nccl-cu12 | actively-maintained |
opencv-contrib-python | 4.13.0.92 | Apache 2.0 | opencv-contrib-python | actively-
maintained |
opencv-contrib-python-headless | 4.12.0.88 | Apache 2.0 | opencv-contrib-python-headless
| actively-maintained |
opt-einsum | 3.4.0 | (see source repo) | opt-einsum | actively-maintained |
packaging | 26.2 | Apache-2.0 OR BSD-2-Clause | packaging | actively-maintained |
pandas | 3.0.3 | BSD 3-Clause License Copyright (c) 2008-2 | pandas | actively-maintained |
pillow | 12.2.0 | MIT-CMU | pillow | actively-maintained |
protobuf | 5.29.6 | 3-Clause BSD License | protobuf | actively-maintained |
pyparser | 3.0 | BSD-3-Clause | pyparser | actively-maintained |
pydantic | 2.13.4 | MIT | pydantic | actively-maintained |
pydantic-core | 2.46.4 | MIT | pydantic-core | actively-maintained |
pyparsing | 3.3.2 | MIT | pyparsing | actively-maintained |
python-dateutil | 2.9.0.post0 | Dual License | python-dateutil | potentially-unmaintained |
python-dotenv | 1.2.2 | BSD-3-Clause | python-dotenv | actively-maintained |
s3transfer | 0.18.0 | Apache License 2.0 | s3transfer | actively-maintained |
scikit-image | 0.25.2 | Files: * Copyright: 2009-2022 the scikit-image team | scikit-image |
actively-maintained |
scikit-learn | 1.6.1 | BSD-3-Clause | scikit-learn | actively-maintained |
scipy | 1.17.1 | Copyright (c) 2001-2002 Enthought, Inc. 2003, SciPy Develope | scipy |

actively-maintained |
sentry-sdk | 2.61.1 | MIT | sentry-sdk | actively-maintained |
setuptools | 81.0.0 | MIT | setuptools | actively-maintained |
six | 1.17.0 | MIT | six | actively-maintained |
sounddevice | 0.5.5 | MIT | sounddevice | actively-maintained |
sympy | 1.14.0 | BSD | sympy | actively-maintained |
threadpoolctl | 3.6.0 | BSD-3-Clause | threadpoolctl | actively-maintained |
tiff file | 2026.6.1 | BSD-3-Clause | tiff file | actively-maintained |
torch | 2.12.0 | BSD-3-Clause | torch | actively-maintained |
torch | 2.12.0+cpu | BSD-3-Clause | torch | actively-maintained |
torchvision | 0.27.0 | BSD | torchvision | actively-maintained |
torchvision | 0.27.0+cpu | BSD | torchvision | actively-maintained |
typing-extensions | 4.15.0 | PSF-2.0 | typing-extensions | actively-maintained |
typing-inspection | 0.4.2 | MIT | typing-inspection | actively-maintained |
tzdata | 2026.2 | Apache-2.0 | tzdata | actively-maintained |
urllib3 | 2.7.0 | MIT | urllib3 | actively-maintained |
xgboost | 2.1.4 | Apache-2.0 | xgboost | actively-maintained |

11. References

- FDA, Cybersecurity in Medical Devices: Quality System Considerations and Content of Premarket Submissions, February 2026 (Section II.C — Software Bill of Materials)
- Section 524B of the Federal Food, Drug, and Cosmetic Act
- NTIA, The Minimum Elements For a Software Bill of Materials, July 2021
- CycloneDX 1.5 specification (<https://cyclonedx.org/specification/overview/>)
- Companion machine-readable SBOM: BlinkLab-SBOM.cdx.json