

 bfatastic and claude	Keyboard layer nav...  f49b5a4 · 22 minutes ago	
 .cargo	one-shot	last week
 .github/workflows	Fonts: use craft-fonts ...	4 hours ago
 apps	The main window ope...	34 minutes ago
 assets	Pencil tool, Edit + Fill... ..	yesterday
 book	CLI: unknown flags ar...	53 minutes ago
 crates	Keyboard layer naviga...	22 minutes ago
 docs	Layers panel: double-c...	1 hour ago
 examples/plugins/in...	Sandboxed WebAsse...	2 days ago
 packaging	Fonts: use craft-fonts ...	4 hours ago
 perf	Background jobs in th...	7 hours ago
 scorecard	Smart Objects and Sm...	15 hours ago
 scripts	Photoshop oracles via...	yesterday
 xtask	PSD manual and optic...	yesterday
 .git-blame-ignore-revs	Ignore the workspace ...	2 days ago
 .gitignore	Fonts: use craft-fonts ...	4 hours ago
 AGENTS.md	Fonts: use craft-fonts ...	4 hours ago
 ATTRIBUTION.md	Fonts: use craft-fonts ...	4 hours ago
 Cargo.lock	Background jobs in th...	7 hours ago
 Cargo.toml	Stylus pressure, tilt, ro...	yesterday
 LICENSE-APACHE	Licensing: MIT OR Apa...	3 days ago
 LICENSE-MIT	Licensing: MIT OR Apa...	3 days ago
 NOTICE	Fonts: use craft-fonts ...	4 hours ago
 README.md	Fonts: use craft-fonts ...	4 hours ago
 SECURITY.md	security: authenticate ...	2 days ago
 clippy.toml	Never crash: steering ...	2 days ago
 fb-clippy.log	FreeBSD: serialise can...	2 days ago
 fb-test.log	FreeBSD: serialise can...	2 days ago
 rustfmt.toml	Format: adopt the craf...	2 days ago

ARTCRAFT

PhotoCraft

Image editing: an open-source, clean-room reimplementaion of Adobe Photoshop, rebuilt in pure Rust.

Layers, masks, adjustment layers, layer styles, type, vectors, brushes and real PSD files, in a native app written entirely in Rust. Open source, offline, and yours.

100% Rust

macOS · Windows · Linux · FreeBSD · Web

license MIT / Apache-2.0

status early alpha

JOIN US ON DISCORD

[PhotoCraft on getartcraft.com](#) · [ArtCraft](#) · [All Crafting Apps](#)

A caption card with a drop shadow, live type, and Vibrance and Curves adjustment layers, with the Curves editor open.

The Great Wave off Kanagawa, Katsushika Hokusai, c. 1831

Note

ArtCraft is a community of artists from all walks of life. Digital, generative, music, games — if you make things, you're one of us. [Come say hi on Discord](#).

[Features](#) · [Everything in the box](#) · [PSD](#) · [Agents](#) · [Under the hood](#) · [Get started](#) · [Crafting Apps](#) · [Discord](#)

 Familiar by design	 Native and fast	 Real PSD files	 Agent-ready
---	--	---	--

The menus, shortcuts, panels and tools are where your hands expect them, from ⌘J to ⌘D. If you know Photoshop, you already know PhotoCraft.

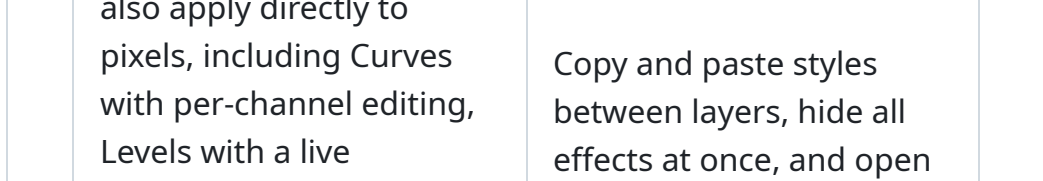
A GPU compositor on wgpu (Metal, Vulkan, DX12, WebGPU), copy-on-write tiles and multithreaded filters. No Electron, no web view, no waiting.

Open, edit and save layered Photoshop documents. Re-saving keeps the render of 307 of the 309 psd-tools test files.

Every action is a command so you can drive the same engine from the UI, the CLI, a JSON control channel or an MCP server.

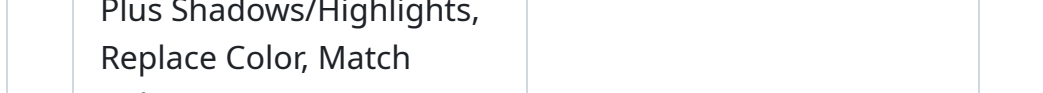
Features

Every screenshot here is the real app at work on public-domain art, rendered offscreen through its control channel.



Levels and Vibrance adjustment layers, with the live Histogram panel.

Impression, Sunrise, Claude Monet, 1872



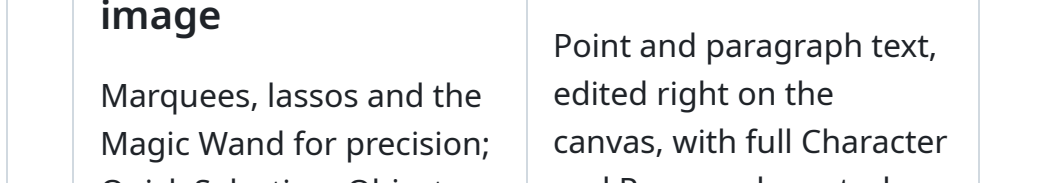
Outer Glow and Stroke on a live type layer, in the Layer Style dialog.

Earthrise, William Anders / NASA, 1968

Edit without regret

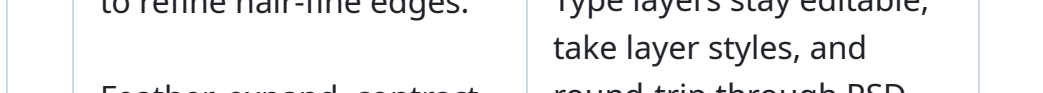
Adjustment layers keep every edit live. Stack Levels, Curves, Vibrance, Hue/Saturation and a dozen more, mask them to an area, reorder them, or turn them off, and your original pixels never change.

16 adjustment layers that also apply directly to pixels, including Curves with per-channel editing, Levels with a live histogram, Black & White, Channel Mixer, Gradient Map, Photo Filter, Selective Color and Color Lookup (.cube, .3dl, .look). Plus Shadows/Highlights, Replace Color, Match Color, HDR Toning, Desaturate and Equalize.



An elliptical selection becomes the mask of a Hue/Saturation layer, so only the face keeps its color.

Girl with a Pearl Earring, Johannes Vermeer, c. 1665



A headline edited in place, with a byline and a paragraph of body text.

Among the Sierra Nevada, California, Albert Bierstadt, 1868

Selections that understand your image

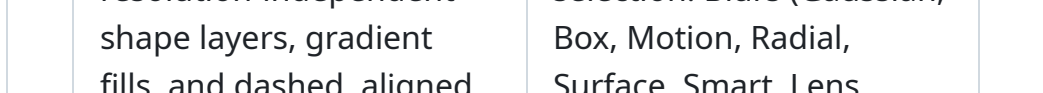
Marquees, lassos and the Magic Wand for precision; Quick Selection, Object Selection and Select Subject when you want the computer to do the tracing; Select and Mask to refine hair-fine edges.

Feather, expand, contract, smooth, grow, reselect. Turn any selection into a layer mask, a vector path or a shape. Smart selection runs on your machine, with no cloud and no account.



A badge made of shape layers: a gradient-filled lotus, a star and a dotted ring.

Water Lilies, Claude Monet, 1906



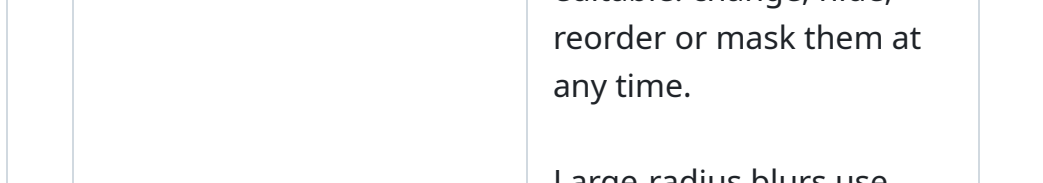
Twirl previews live on the canvas, only inside the selection.

The Starry Night, Vincent van Gogh, 1889

Pixel-perfect vectors

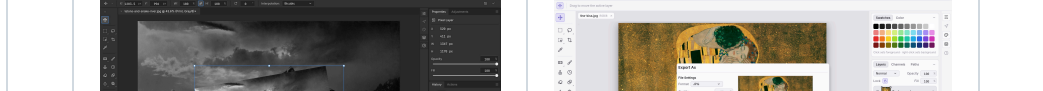
Rectangle, Ellipse, Triangle, Polygon, Line and the Pen tool, with resolution-independent shape layers, gradient fills, and dashed, aligned strokes.

Combine shapes (unite, subtract, intersect, exclude), keep paths in the Paths panel, use them as vector masks, or stroke and fill them. 116 of 116 shape layers in our PSD corpus match Photoshop's pixels.



Free Transform on a rotated print, with every step listed in history.

The Tetrans and the Snake River, Ansel Adams, 1942



Export As in the light theme, with a preview and a file-size estimate.

The Kiss, Gustav Klimt, 1907-1908

Shape it any way you like

Free Transform with scale, rotate, skew, distort and perspective; exact 90° and 180° rotations and Flip; Transform Again. Layers, type, shapes, masks and selections all transform together.

Full history, Toggle Last State and the History Brush mean every step can be undone, even one brush stroke at a time.

See it before you commit

Every preview dialog previews live on the canvas, through your selection. Blurs (Gaussian, Box, Motion, Radial, Surface, Smart, Lens, Shape, and the Blur Gallery: Tilt-Shift, Iris, Field, Spin, Path), sharpening, Reduce Noise, distortions (Twirl, Wave, Ripple, Displace, Shear, Zig Zag...), Pixelate, Stylize (Oil Paint, Wind, Extrude...), Render (Clouds, Fibers, Lens Flare, Lighting Effects) and more.

Run filters on a smart object and they stay editable: change, hide, reorder or mask them at any time.

Large-radius blurs use running-sum box passes across all cores: a radius-180 Gaussian on 3.6 MP takes under a second.

Ship it anywhere

Export As with format, quality, transparency and scale, plus a preview and an instant file-size estimate. Quick Export to PNG in one click.

Choose a dark Pro theme, the airy Studio themes, or a Classic look.

Everything in the box

 34 tools	 A real brush engine	 Layers, done properly
---	--	--

Move · Rectangular and Elliptical · Marquee · Lasso · Polygonal · Lasso · Magic Wand · Quick Selection · Object Selection · Crop · Eyedropper · Brush · Pencil · Mixer Brush · Color · Replacement · Eraser · Clone Stamp · Healing Brush · Spot Healing · History Brush · Gradient · Paint Bucket · Blur · Sharpen · Smudge · Dodge · Burn · Sponge · Pen · Path Selection · Type · five Shape tools · Hand · Zoom

Shape Dynamics, Scattering, Texture, Dual Brush, Color Dynamics, Transfer, Brush Pose, Wet Edges, Build-up and Smoothing (including Pulled String), driven by pen pressure, tilt, rotation and direction. Brush presets, Define Brush from Selection, and deterministic, replayable strokes.

Groups, clipping masks, pixel and vector masks, fill layers (solid, gradient and pattern), adjustment layers, live smart objects with smart filters and lossless transforms and warps, multi-layer selection with align, distribute and link, alpha channels and Quick Mask, 27 blend modes, opacity and fill, locks, colour labels, layer filters, merge, flatten, rasterize, Layer via Copy/Cut, Paste Into.

Any colour, any depth

RGB, Grayscale, CMYK and Lab documents at 8, 16 and 32 bits per channel. Bit depth and colour model are runtime data, so every tool works at every depth.

Real ICC colour management in pure Rust: embedded profiles, Assign and Convert to Profile with all four rendering intents and black point compensation, soft proofing (⌘Y) and Gamut Warning (⇧⌘Y) on the GPU.

Formats

PSD and PSB, plus PNG, JPEG, TIFF, WebP, GIF, BMP, TGA, ICO, QOI, PNM, OpenEXR, Radiance HDR and AVIF, with symmetric read and write at 8, 16 and 32 bits, and the native .pcraft format.

The everyday essentials

Auto Tone, Contrast and Color · Equalize · Image and Canvas Size · Crop and Trim · Reveal All · Edit · Fill and Stroke · Copy Merged · Paste in Place · guides, rulers, grid and snapping · Actions record and replay · a command palette (⌘K).

PSD without compromise

PhotoCraft's PSD support is a standalone crate written from Adobe's public specification and tested against a corpus of real-world files.

• **Faithful round trips:** opening and re-saving a document renders the same for 307 of the 309 files in the psd-tools test set and 169 of 170 in our fixed ag-psd-psd-tools set (crates/io/tests/corpus.rs ; mix the psd-tools set with cargo xtask corpus --psd-tools), and anything we don't model yet (raw blocks, descriptors, extras) is carried over instead of being dropped. A re-saved file is not byte-identical to its source: PhotoCraft rewrites image resources, layer records and the composite. Only the standalone photocraft-psd crate, parsing and writing a file without the document model, reproduces every parseable corpus file byte for byte (crates/psd/tests/corpus.rs).

• **Pixels that match:** a composite oracle compares our render with Photoshop's own merged image, covering gradient interpolation (Classic, Perceptual and Linear), layer effects, shape strokes, clipping and fill opacity.

• **Large documents:** PSB, 16 and 32-bit files, and CMYK and Lab documents open natively.

Built for agents

Every menu item, tool and dialog runs a command from one registry of 500+ commands. The UI, the CLI, the JSON control channel and the MCP server all call the same commands, so anything you can click, a script or an AI agent can do too.

```
# Headless: open, edit, save
photocraft-cli run wave.psd \
  --cmd filter.sharpen.smartSharpen --params
  --cmd layer.newAdjustmentLayer.curves --params
  --out wave-final.png
```

```
# Apply one action list to a folder of images
photocraft-cli batch --actions grade.json --in ..
```

```
# Let an agent drive it over MCP (headless, or bi
photocraft-cli mcp
```

The desktop app also offers an authenticated, loopback-only control channel (photocraft --control) for inspecting UI state, driving tools with pointer events, and taking offscreen screenshots. Every image in this README was rendered that way. See [docs/control-protocol.md](#).

Under the hood

• **Engine first:** a pure-data document model and a command engine, with a thin gui UI on top. Layering is enforced at build time across 24 crates.

• **Two compositors:** a CPU compositor serves as the reference oracle, and a wgpu compositor puts the canvas on the GPU. They are tested against each other.

• **Copy-on-write tiles:** 256² sparse tiles make undo cheap and huge canvases light, and effect maps are cached per layer state.

• **Runs in the browser:** the whole engine and UI compile to WebAssembly.

• **Clean-room:** implemented from public specs and observed behaviour only. No proprietary code, shaders or assets.

• **Tested:** more than 1,700 tests, including PSD round trips, synthetic generators, compositor oracles and multi-depth checks.

Get started

```
git clone https://github.com/storytold/photocraft
cd photocraft
cargo run --release -p photocraft -- image.psd
cargo test --workspace
```

Japanese fonts for the UI and Type tool come from [craft-fonts](#), an optional build input (desktop release builds always include it). Without it PhotoCraft uses your system's CJK fonts:

```
git clone https://github.com/storytold/craft-fonts
CRAFT_FONTS_DIR="$PWD/./craft-fonts" cargo run
```

New contributors and AI agents: start with [AGENTS.md](#), then [docs/](#).

Installers for macOS, Windows, Linux, FreeBSD and the web are attached to each [GitHub release](#). On Linux you can pick an AppImage, a .deb, an .rpm, a tarball or a Flatpak bundle. The bundle needs the freedesktop runtime from [Flathub](#), which flatpak offers to install along with it:

```
flatpak install --user photocraft-<version>-linux
flatpak run ai.storyteller.photocraft
```

On macOS, the command-line tool comes as photocraft-cli-<version>-macos-universal.zip. The binary is signed with the same Developer ID as the app and notarized by Apple. A bare binary can't carry a stapled notarization ticket the way the DMG does, so the first time you run it macOS checks the notarization online. You can confirm it yourself:

```
ditto -x -k photocraft-cli-<version>-macos-universal
spctl --assess --type install -vv photocraft-cli
# ... accepted, source=Notarized Developer ID
```

About

An open-source, clean-room reimplementaion of Adobe Photoshop in pure Rust

[getartcraft.com/apps/phot...](#)

[adobe](#)

[adobe-photoshop-2026](#)

[adobe-photoshop-2026-ai](#) [art](#)

[image-editing](#)

[image-editing-software](#)

[image-editor](#) [images](#)

[photo-editing](#) [photoshop](#)

[psd](#) [rust](#)

 Readme

 Apache-2.0, MIT licenses found

 Contributing

 Security policy

 Activity

 Custom properties

 7.6k stars

 27 watching

 936 forks

Report repository

Releases 5

 **PhotoCraft v0.2.0** [\(Latest\)](#)

2 days ago

[+ 4 releases](#)

Contributors 21



[+ 7 contributors](#)

Languages

Rust 99.2% **Other** 0.8%

On FreeBSD 14 (x86_64), the release has a tarball laid out like `/usr/local .` Install the runtime libraries, then unpack it there:

```
pkg install libxkbcommon wayland libX11 libXcursor
tar -xzf photocraft-<version>-freebsd-x86_64.tar
photocraft
```

Maintainers: [docs/releasing.md](#) explains how releases are built, signed and published.

Important

Status: PhotoCraft is in early alpha, and we want to be straight about where it stands: much of Photoshop's feature surface exists in some form, but **it is not yet a Photoshop replacement for daily professional work**. The biggest gaps are AI/generative features, about twenty missing tools, depth in typography and pro workflows, and plug-in compatibility. Every Photoshop menu item is wired to a command ([docs/parity.md](#)), but that measures wiring, not behaviour. The honest, dimension-by-dimension picture and where we're going next are in the [roadmap's parity assessment](#). Expect rough edges, and please file issues (include your OS, document size, layer count and a screenshot). You can also tell us what broke on [Discord](#).

Documentation

Developer, architecture, automation, format, and security documentation is maintained in the [PhotoCraft documentation book](#).

Security

Security architecture, threat modeling, parser hardening, fuzzing, and vulnerability reporting are covered in the [security documentation](#) and the repository [security policy](#).

Test corpora

PhotoCraft is tested against real files: our own Photoshop-authored oracle PSDs in [photocraft-corpus](#) plus the psd-tools, ag-psd and PngSuite sets, pinned and sha256-verified. Fetch them with `cargo xtask corpus --all` and run the tests with `cargo xtask test-corpus` (details in [docs/development.md](#)).

The Crafting Apps

PhotoCraft is one of the **Crafting Apps**: free, open-source creative tools from the [ArtCraft](#) team, each written from scratch in Rust and each able to stand on its own.

	App	What it's for	Code	Learn more
	PhotoCraft	Image editing: layers, masks, type and real PSD files · you are here	GitHub	Website
	VectorCraft	Vector illustration	GitHub	Website
	FilmCraft	Video editing, color and sound	GitHub	Website
	LightCraft	Photo library and raw development	GitHub	Website
	PrintCraft	Reading, organizing and protecting PDFs	GitHub	Website
	EffectCraft	Motion graphics and visual effects	GitHub	Website
	DesignCraft	Page layout and publishing	GitHub	Website

And [ArtCraft](#) itself, our AI image and video studio for artists who want real control.

The Crafting Apps share the same conventions: clean-room and pure Rust, native on macOS, Windows and Linux, in the browser via WebAssembly, and fully drivable by agents.



Come make things with us

Our Discord is where artists of every kind hang out: people who paint, shoot, draw, cut film, set type, and people still figuring out what they like to make. Share what you're working on, ask for help, tell us what's broken, or tell us what you wish these tools could do. Whatever your medium and however long you've been at it, you're welcome here.

[discord.gg/artcraft](#) · [getartcraft.com](#) · [The Crafting Apps](#) · [PhotoCraft](#)

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Made by the [ArtCraft](#) team and community.

ArtCraft