

PLOTVA STUDIO PRO — Windows Application Package

Build v39.6-r8 · 28 October 2026

Document	PLOTVA-WINDOWS-APP
Subject	Windows executable packaging of the PLOTVA Studio PRO single-file application
Build	v39.6-r8 (sealed 52742bc5... , viewer c8966164...)
Target platform	Windows 10 and Windows 11, 64-bit
Distribution	PLOTVA-STUDIO-PR0.exe to buyers · PLOTVA-STUDIO-PR0-DEMO.exe to the public
Status	Built and mechanically verified (§6). Not yet code-signed (§4.3)

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1. Purpose and scope

This document describes the Windows executable edition of PLOTVA Studio PRO: what it is, what it protects, what it does not protect, how it behaves on a customer machine, and how it is rebuilt. It supersedes no earlier document; the licensing model, the pricing and the site bundle are unchanged and are described in `FINAL-FILES.md` and `AUDIT-v39.6-r8-REPORT.md`.

The executable is an **additional delivery format**. The single HTML file remains the master artefact; the executable wraps it. Nothing in the licence system changes: a copy still has to activate against the licence server, and the six durations, the viewer mode and the owner controls behave exactly as before.

2. What the executable is

A portable, single-file launcher of approximately 3.9 MB with no installer, no administrator rights, no bundled browser engine and no external runtime. It is a native 64-bit Windows program (PE32+, Windows GUI subsystem) built from `_source/plotva-launcher.c` with mingw-w64, icon and version resource embedded, and it depends only on DLLs present on every Windows 10/11 installation: `KERNEL32`, `USER32`, `SHELL32`, `ADVAPI32`, `msvcrt`.

At start-up it performs six steps.

1. Decrypts the embedded application image in memory with ChaCha20 (per-build random key and nonce).
 2. Recomputes the SHA-256 of the decrypted image and compares it with the value compiled into the executable at build time. Any mismatch aborts the run with a clear message.
1. Creates (or reuses) a hidden per-user folder and writes the application there.
 2. Locates Microsoft Edge, or Chrome, or Brave — in that order — through the Windows *App Paths* registry and the standard installation directories.
1. Opens the application in a dedicated Chromium application window: no address bar, no tabs from the user's own browsing, a private profile that belongs to the product.
 1. When the window closes, deletes the plain-text copy again.

3. What it protects

Exposure in the plain HTML file	Position with the executable
The application source sits on disk in readable text; "Save page as" or a file copy captures it instantly	The file on disk contains no plain-text application ; the image is encrypted and held inside the executable
The file can be forwarded to anyone by email or USB in one step and runs anywhere	The executable must be run on a Windows machine, and the copy it produces is removed when the window closes
The buyer sees an <code>.html</code> file and may assume it is a web page they can edit	The buyer sees a normal Windows application with an icon, a product name and version information in <i>Properties</i>
Nothing checks that the file is the one that was shipped	Every start verifies the image's SHA-256 against the build-time value; a modified or damaged image refuses to run

These measures raise the effort required to copy the application. They do not change the licensing position, which remains the actual mechanism of control: the server decides who may design, save and download.

4. What it does not protect

This section is deliberately explicit so that no protection is assumed that does not exist.

4.1 Reverse engineering

The decryption key is inside the executable. A person with sufficient skill can extract it, decrypt the image and obtain the HTML. The executable is not a cryptographic vault; it is a delivery wrapper that stops casual copying. Any claim that a program distributed to a customer's own machine can be made unreadable is false.

4.2 Copying at run time

While the application window is open, the plain-text copy exists in the user's profile folder. A determined user can find it and copy it in that window. Screenshots, printing and browser developer tools remain available.

4.3 Code signing

The executable is **not** code-signed. Windows SmartScreen will therefore show *"Windows protected your PC"* the first time an unfamiliar machine runs it, and Microsoft Defender may hold it briefly for inspection. This is expected for any new unsigned executable and is not a defect. Two options:

Option	Effect	Cost
Leave unsigned	Buyer clicks <i>More info</i> → <i>Run anyway</i> once	None
Buy a code-signing certificate (OV)	Warning disappears after the file builds reputation	Roughly USD 200–400 per year
Buy an EV certificate	Warning disappears immediately	Higher; identity documents required

If the product is sold at any volume, an OV certificate is the sensible purchase; it also protects the owner's reputation, because an unsigned binary is exactly what malware looks like.

4.4 Licensing

None of this replaces the licence server. If the server is unreachable, a licensed machine continues on its existing lease; an unlicensed machine stays in viewer mode. The executable neither adds nor removes any entitlement.

5. Behaviour on a customer machine

Item	Location or value
The executable	Wherever the customer saves it; no installation step
Working folder	%LOCALAPPDATA%\PLOTVA Studio Pro\<version>\ (hidden)
Application copy while running	...\<version>\studio.html (deleted when the window closes)
Product browser profile	...\<version>\browser\ — holds the activation and the licence lease
Old versions	Removed automatically at start-up, so only the current build remains
Registry	Nothing is written
Start menu / desktop	No shortcut is created; the customer may pin the executable if desired
Uninstall	Delete the executable and the PLOTVA Studio Pro folder shown above

The demonstration edition uses the folder PLOTVA Studio Pro Demo so that both editions can coexist on one machine without sharing an activation.

6. Verification performed

Every statement below was executed on the delivered files, not inferred.

Check	Method	Result
Encryption implemented correctly	RFC 8439 §2.4.2 known-answer vector in the build script	Passed
Binary is a genuine Windows application	file(1) and PE header inspection	PE32+ executable for MS Windows 5.02 (GUI), x86-64 ; subsystem Windows GUI
Image decrypts and verifies at run time	Executed the delivered .exe with --selftest under Wine	OK · bytes=3884825 · sha256=52742bc5... — identical to the sealed build
Extracted copy is the shipped application	Byte comparison of the extracted file against PLOTVA-STUDIO-PRO.html	Byte-identical
Browser discovery and command line	Executed with --dryrun , which reports what would be launched	msedge.exe located; -- app="file:///.../studio.html" with a private --user-data-dir , 1560×980 window

Check	Method	Result
No plain text inside the executable	Search for the application's first 64 bytes in the binary	Not present — ciphertext only
The application still works from the extracted copy, first run, clean profile	Chromium launched on the extracted file with an empty profile	Password gate shown, <code>window.app</code> undefined before unlock, viewer mode afterwards, 10 rooms rendered, zero page errors
Product metadata	PE version resource	Product name, version <code>v39.6-r8</code> , company, copyright and the educational-use notice

Not verified here: the appearance of the Edge application window on real Windows hardware, and behaviour against SmartScreen. Both require a Windows machine in front of you; the underlying mechanisms (`--app=` and the `App Paths` lookup) are the same ones the dry-run exercised.

7. Rebuilding

```
`` bash python3 _source/build-exe.py PLOTVA-STUDIO-PRO.html PLOTVA-STUDIO-PRO.exe \ --name
"PL0TVA Studio Pro" --ver v39.6-r8 python3 _source/build-exe.py PLOTVA-STUDIO-PRO-DEMO.html
PLOTVA-STUDIO-PRO-DEMO.exe \ --name "PL0TVA Studio Pro – Free Viewer" --ver v39.6-r8 \ --
folder "PL0TVA Studio Pro Demo" ``
```

Requirements: `mingw-w64` (provides `x86_64-w64-mingw32-gcc`, `ld`, `windres`) and Python *Pillow* for the icon. Every build generates a fresh key and nonce, so **each rebuild produces a different executable**; the fingerprints in §8 change accordingly. The build script prints the plain-image SHA-256 and refuses to continue if the encryption self-test fails.

Raising `--ver` also raises the per-user folder name, which is what causes older builds to be purged on the customer's machine.

8. Fingerprints

File	Bytes	SHA-256
<code>PLOTVA-STUDIO-PRO.exe</code>	3,926,528	<code>a6426fbc340c6748e4feed36fd8d7148399319bea3ed5eead205892802d2e6e1</code>
<code>PLOTVA-STUDIO-PRO-DEMO.exe</code>	2,955,264	<code>6ee1a798713c7878942dfa5038253d8b495e500ef722d2cd794196eea273ebfe</code>
Application inside both: sealed	3,884,825	<code>52742bc5aedfb636403f3dfd83b30cfe395a594ba42aa744bb7cab393a6a32ff</code>

File	Bytes	SHA-256
Application inside both: viewer	2,912,819	c896616435bc2cf371eda9a1ba2db37a85572156f24f2f272d18662c40d527ba

9. Troubleshooting

Symptom	Cause	Action
"Windows protected your PC"	Unsigned executable, no reputation yet	<i>More info</i> → <i>Run anyway</i> , or code-sign the binary
"No browser was found on this machine"	No Edge, Chrome or Brave	Install Microsoft Edge (free, ships with Windows 10/11)
"The application image failed its integrity check"	The file was modified, truncated or damaged in transfer	Send a fresh copy; compare the SHA-256 in §8
The window opens blank	The dedicated profile was corrupted	Delete %LOCALAPPDATA%\PLOTVA Studio Pro and start again; the activation will have to be repeated
Viewer mode after reinstalling Windows	The machine identifier changed	Issue a new key from PLOTVA-ISSUE-KEY.html
Antivirus quarantine	New, unsigned, self-extracting binary	Add an exclusion, or code-sign; do not disable protection wholesale

10. Distribution guidance

Recipient	Send	Do not send
Paying customer	PLOTVA-STUDIO-PRO.exe (or the HTML if they prefer)	anything under licensing/ , OWNER-LICENSE.txt , PLOTVA-ISSUE-KEY.html , the owner pack
Prospective customer, publicity	PLOTVA-STUDIO-PRO-DEMO.exe	the sealed executable
Your own archive	04-WINDOWS-APP.zip	—

The executable and the HTML edition are interchangeable for a buyer: both activate against the same server with the same key, and both obey the same plan limits.

End of document. The executable is a delivery wrapper around the same verified build; the security position of the product is unchanged and is set out in §4 and in the audit report.