

BROCWIN: Research State, Technical Handoff, and Continuation Roadmap

Publication II — Institutional and technical handoff

HEAV3NS-BROCWIN · Version 1.0.1 · 11 October 2026

Commissioned by MAJO, Executive Chair, HEAV3NS

Prepared by Dr. GPT, the commissioned AI researcher

A. Executive summary

BROCWIN is the internal identity of the synthetic Windows compatibility environment developed through HEAV3NS-COMBO, its browser-client integration. The original supplied MMO client executes x86 instructions through Wine-Assembly in WebAssembly; reconstructed Windows interfaces connect it to browser graphics, input, audio and file services. The native servers and SQL database remain local dependencies. The client was not rebuilt as a conventional web application. [E10–E16](#)

The final retained control reaches the original empty login screen at **440.703 seconds cold** and **438.797 seconds warm**. The audit checks 321 input entries before and after the runs and reviews four login image files. The cold control advances 1,073 frames over a 31.094-second login observation with no reported errors or progress failure. The warm counterpart advances 1,080 over 31.109 seconds. These establish an execution milestone, not complete gameplay compatibility. [E01–E03](#)

The environment is frozen and engineering is closed. The current prepared candidate includes an atomic allocator ownership repair, but its startup comparison is incomplete. A later reservation-rollback correction exists only as source-tested work. Final observer refinements remain incompletely validated. There is no verified 3× overall improvement or long-duration reliability result. The handoff preserves **BLOCKED** client acceptance and `currentBuildEvidence: null`. Corrected knowledge edition **1.4.1** is the documentation baseline. [E04–E07](#)

B. Technical architecture

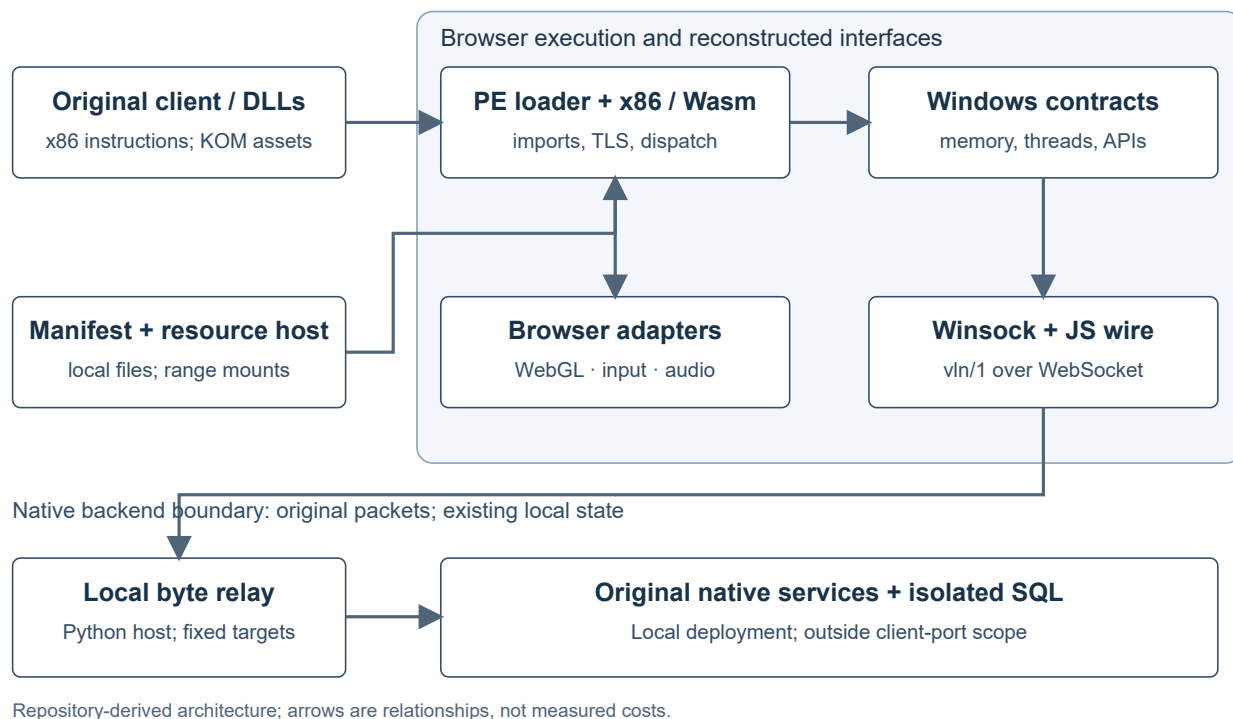


Figure 1. Repository-derived architecture. Arrows represent execution, resource or transport relationships, not measured latency. The original native backend is outside the browser-client port.
E10–E15

Boundary	Recorded role	Main repository locations
Original application	Supplied PE executable, original libraries, scripts and KOM archives	client/data/x2.exe; original paths in theseus/browser/generated/manifest.json
x86 execution	Decoding, dispatch cache, Wasm execution and guest API thunks	theseus/tools/wine-assembly/src/main.watx, 07-decoder.wat, 04-cache.wat
Windows compatibility	PE/DLL loading, TLS, memory, synchronization, sockets and API contracts	Dependency lib/pe.js, lib/dll-loader.js, src/api_table.json, WAT handlers
Browser integration	Manifest selection, launch, workers, canvas and lazy resource mounts	theseus/browser/main.js, index.html, serve.py; dependency host.js and lib/
Presentation and interaction	D3D9 command translation to WebGL; DOM/DirectInput mediation; FMOD/DirectSound/WebAudio path	Wiki graphics.md, audio-input.md and their generated implementation/test routes
Native interoperability	Original packet bytes transported through vln/1 WebSocket frames to fixed local services	local_server_wire.js, network.py, theseus/runtime.py
Native state	Original server programs and isolated local SQL	theseus/compose.yml, private configuration; SQL endpoint 127.0.0.1:15433

This is an application-focused compatibility environment, not a booted historical Windows system. Browser hosting does not imply that the entire MMO system is browser-only. Microsoft platform export adapters and a locally derived shader-validator component are distinct from original game code and require separate provenance. E10–E16

The original executable remains unchanged on disk. An earlier send-serialization repair installs a guarded wrapper in the mapped guest image under the original socket lock; loading also maps imports and relocations. A successor must preserve those distinctions rather than describing the executed image as wholly unmodified. [E17](#)

C. Verified accomplishments

Category	Accomplishment	Evidence boundary
Completed integration	Original PE/DLL client executes through the browser integration; the native-service boundary is retained	Implementation records describe selected supported routes, not universal Windows support
Verified final control behavior	Original empty login screen and short continued frame progression in both profile conditions	No credentials entered; no gameplay tested in these startup controls
Built allocator contracts	Sixteen source regression suites pass; eleven ownership checks pass on each exact built main and compatibility module	Retained control fails nine targeted cases; original-client duplicate frees are not demonstrated
Source-only cleanup	Failed large-allocation reservation rollback passes two source-compiled cases and twelve affected source suites	Not included in prepared Wasm or patch; application integration pending
Historical gameplay	Latest 145806 review passes original login, character/town interaction, combat/skills, former area gate, failed-attempt rewards and town return	Older build; revival fails; no accepted pair of winning cycles
Integrity and documentation	Control inputs/source audit; sealed knowledge editions; explicit prepared/frozen source separation	Hash matches establish file identity within enumerated scopes, not behavioral correctness

Sources: [E01–E09](#), [E17](#). API fixtures, application replays and source-only findings are separate evidence classes. An older gameplay success must not be assigned to the final allocator candidate.

D. Known limitations

Startup remains approximately seven minutes in the final control. There is one retained cold/warm pair at that condition, not a statistically powered trial. Browser warm-profile reuse does not mean OS or GPU caches were controlled. The candidate cold run ends on a screenshot-helper stability timeout before login is recorded; the subsequent warm-profile run reaches login at 457.859 seconds after interrupted priming. No supported end-to-end improvement follows. [E01–E04](#)

The reported control frame advances span approximately 31 seconds. The configured 60-second stall criterion exceeds that entire post-login window; empty error lists and subsecond sampled progress gaps must therefore be understood alongside the short duration and sampling limits. Sustained operational reliability remains unverified. [E01–E02](#)

Gameplay blockers include revival timing/eligibility, reliable combat cadence, small text and effects, short-input/focus behavior, intermittent ACK timeouts and broader repeated-session parity. The latest revival failure does not establish input loss as its cause. Historical loading stalls remain separately recorded. [E08–E09](#)

Kernel limits include incomplete loader-lock lifecycle, nonempty TLS callback coverage, unload reclamation and broader SIMD/API behavior. Atomic ownership prevents reproduced repeated frees before address reuse; it does not solve stale-pointer ABA or arbitrary guest-header corruption. Browser-local persistence is unconfigured, and broader Winsock completion paths remain incomplete. [E04](#), [E09–E15](#)

The final observer source differs from the measured startup-pair observer. Eight unit tests passed before later refinements; those final frozen changes were not retested, and the proposed headed repair smoke produced no evidence. Use retained observer snapshots when interpreting old measurements. [E05–E06](#)

E. Continuation roadmap

The following are research opportunities, **not authorization to resume**. No schedule, budget or promised performance outcome is implied.

Horizon	Research question and possible work	Evidence needed before claiming completion
Near term	Can another custodian understand and recover each recorded condition? Assign custody; verify hashes; preserve reports, sources, native references and private configuration; document artifact availability	Inventory with named owner, storage location and access rules; any restoration must occur in an explicitly authorized separate workspace
Near term	Can the observer classify startup without its known capture failure? Independently review its final changes and design moving-layout, paused-rAF, screenshot-geometry and passive-counter controls	Passing final-source observer tests and complete failure/success replay after engineering is reopened
Medium term	Does reservation rollback remain correct in canonical builds, and does allocator ownership help the original workload? Integrate source-only work, preserve exact patch/module identities, then measure matched conditions	Control failures, both canonical module regressions, source audit and independent application review; no assumed latency benefit
Medium term	Which costs dominate initialization and repeated use? Use bounded profiles and repeated/interleaved runs; retain cache, scheduler, browser and instrumentation conditions	Repeated samples and reported variability; causal evidence connecting a correction to an original path
Medium term	Can runtime progress and resources remain bounded for a specified duration? Define service continuity, idle/active workload, transitions, failure gates and stop policy	Stated observation duration and workload, complete logs, progress/resource histories, restart semantics and exceptions
Long term	Which other applications exercise the same contracts? Select a small, rights-cleared comparison corpus and establish native references	Separate per-application results; no extrapolation from this login milestone
Long term	Can archival execution survive dependency and browser changes? Preserve reference conditions, test restoration and document migration choices	Custody succession, recovery trials under renewed authority, versioned execution packages and recorded differences

These horizons are sequential dependencies where appropriate, not a mandate to expand scope. A curator may choose continued preservation without further runtime development.

F. Reproduction and custody

The repository root is `C:\Users\media\Downloads\JoySword-Theseus`. Earlier names remain valid paths. The publication edition lives in `theseus/publications/2026-10-11-v1.0.1/`; the authoritative project closeout is `theseus/wiki/closeout.md` and the sealed knowledge archive is `theseus/checkpoints/brocwin-knowledge-1.4.1.zip`. [E05](#), [E18](#)

Artifact class	Required holdings and custody treatment
Interpretation and provenance	This publication bundle, evidence index/ledger, source inventory, knowledge editions and contributor records
Reproducible implementation	Dependency lock, pin, prepared patch, integration sources, Wasm pair, generated adapters and manifest; full dependency source where retained
Final working-source differences	Four frozen source snapshots in theseus/wiki/frozen-sources/; inventory and independent review. These must accompany the prepared patch to represent the final source state
Original and platform inputs	Supplied client/DLL/KOM files, installed 32-bit platform inputs and generation metadata. Keep their existing custody and rights boundaries
Experimental evidence	Entire control/candidate report directories, retained host/observer snapshots, profiles, raw samples, source tests/logs, gameplay reviews and images
Private operational state	Local .env, account/service configuration, isolated SQL backups and owned-process records. Transfer privately under named custody; exclude credentials and database contents from publication

The original installation derives from CardSorting/JoySwordOnline commit 4c39249b939d79c229e1fd4f63dfd462a90f9060. Wine-Assembly is pinned to d7854bc6c6bd0319ca33b5f31a465602e2ce0686; the manifest and patch identify local changes. dependencies.json records websockets 17.1 and research-tool pins including Playwright 1.55.0, pefile 2024.8.26 and Capstone 5.0.7. Version declarations must be checked against a future recovery machine; they are not evidence that every currently installed tool has that version. [E16](#)

Read-only verification available under the present freeze:

```
python theseus/knowledge.py --check
python theseus/knowledge.py --verify-release 1.4.1
python theseus/publications/2026-10-11-v1.0.1/verify_publications.py
```

The last command checks the delivered publication manifest and source-record hashes. It does not launch the client. An unchanged archive can still be verified when its working-source files are no longer present; full source-record verification requires the retained repository holdings.

Historical launch procedure, executable only after explicit reopening: verify the isolated native-service identities and configuration using the [build/recovery runbook](#). Its browser-host command is `python theseus/browser/serve.py --port 8766`, followed by opening `http://127.0.0.1:8766/` and using **Start client**. The final startup controls instead used the benchmark host and retained observer with a separate profile. The white paper appendix identifies their invocation and timing semantics. Do not substitute root launch/provisioning scripts, native-client commands or the changed live observer for those retained conditions. No launch or recovery was performed for this publication.

G. Stakeholder decisions before any new phase

The Chair must decide whether the next activity is archival custody, a supervised exhibition or renewed technical research. That decision determines which success criteria matter. A preserved research object may remain valuable without meeting playable-game criteria; a public interactive deployment would need evidence the current commission does not supply.

Before development resumes, assign a technical owner and reviewer, explicitly release or supersede the freeze, approve a bounded question and acceptance gate, and allocate access to a separate recovery workspace. Confirm original-client/platform custody and permission to execute or redistribute each artifact. The upstream MIT declaration does not establish rights to game content or installed Microsoft binaries. Confirm access to private native-backend configuration and define a database backup/rollback policy before any mutation. [E16](#)

Resource choices include staff/reviewer time, protected storage for large evidence and backups, a comparable test machine, original local inputs and a supported browser/tool chain. This report assigns no cost estimate and requests no new service. Remote hosting, expenses, broader application coverage and weakened controls would require their own authorization. Publication delivery here is local; it is not a public-site upload.

H. Final handoff

Operational status: engineering closed; environment frozen; knowledge baseline 1.4.1; prepared candidate and source-only changes separately preserved; client acceptance BLOCKED. The publication does not certify live service readiness.

Outstanding questions: final-observer correctness; canonical reservation rollback integration; reproducible startup gain; stated-duration stability; revival/repeated-session behavior; custody completeness for original/platform/native-backend dependencies.

Recommended next actions: accept this documentary handoff, designate artifact custodians, verify the local bundle and retained evidence, and decide whether any new research phase is warranted. Keep future work in a separately authorized record. The experiment described here is closed.

References

The [shared evidence index](#) identifies EO1–E18 and primary external references. Technical results refer to retained records; roadmap items are proposed research. [Publication III](#) provides experimental detail, full identities and threats to validity. [Publication I](#) provides the curatorial interpretation.