BENCHEWS · SCIENTIFIC MONOGRAPH



BenchEWS Studio Web – Scientific Release Companion & Mode Comparison

Scientific boundaries, parity, and data custody

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State: 29 September 2026. This document complements the User Manual and compares deployment modes without confusing operational convenience with scientific quality.

1 - Shared scientific core

All intended modes use the same verified Scientific Core. Deployment must not change mathematical definitions, module IDs, scientific-status semantics, scientifically relevant validation, or provenance rules.

2 - Mode comparison

Attribute	Public Web	Desktop 2.0.0	Local Offline	Institutional Self-hosted
Processing location	BenchEWS server	local desktop	own computer	institution-controlled infrastructure
Raw data leaves local environment	yes, for server processing	no	no	not outside the institution
Telemetry	public RC: off	desktop-specific	off by default	local and off by default
Network required after installation	yes	no for local analysis	no	no mandatory outbound
Status 2026-09-29	released	released	release gate open	release gate open
Scientific core	BenchEWS Core	canonical reference lineage	same Core required	same Core required

3 - Public Web boundary

Remote processing can be hardened and data-minimised, but it is not local data custody. Public Web must therefore not be described as mathematically or legally guaranteeing that only the submitting researcher can access raw data.

4 - CRTI

CRTI remains EXPERIMENTAL_UNVALIDATED. The service may perform a numerical computation and provide provenance; this does not establish scientific validation, risk probability, or an automatic tipping-point prediction.

5 - Local Offline release gate

Before an Offline download button can be activated, evidence must include at least:

- reproducible package and checksums,
- execution with networking disabled,
- no outbound requests required for scientific computation,
- telemetry off by default,
- parity with the verified Scientific Core,

- installation, removal, and recovery documentation.

6 - Institutional Self-hosted release gate

Before the institutional package is released, evidence must include at least:

- reproducible container or package,
- operation without mandatory outbound networking,
- local logging and telemetry defaults,
- admin guide, backup/restore, upgrade, and rollback,
- parity and provenance for the running Scientific Core.

7 - No scientific-quality ranking

Public Web, Desktop, Local Offline, and Institutional Self-hosted are data-custody and operational choices. They must not be presented as a ranking of scientific quality.

8 - Tolerance Contract for numerical parity

Non-exact cross-platform parity is permitted only under a Tolerance Contract frozen before evaluation. The contract is versioned and cryptographically bound; missing, PENDING, modified, or unregistered contracts cannot produce PASS. Tolerances must not be widened after observing the discrepancy in order to make a run pass. Any later scientifically justified change requires a new contract version and new provenance. Same-runtime comparisons use the frozen exact contract. The CRTI macOS/Linux contract remains PENDING without a numerical tolerance until Mac reference outputs and runtime evidence are available.