

# RELEASE NOTES



Version history of the four products that make up the suite. Document date: September 2026. Versions follow the YEAR.MINOR.PATCH scheme. Support: quantum@ant-automation.com

| PRODUCT                   | CURRENT<br>VERSION | RELEASED       | RUNS ON                                                         |
|---------------------------|--------------------|----------------|-----------------------------------------------------------------|
| CIRA Optris Acquisition   | 2026.2.1           | July 2026      | Linux x86-64 (Docker), Windows 10/11 (native executable)        |
| Q-Forge Vision            | 2026.3.2           | August 2026    | Docker: CPU, NVIDIA CUDA, ARM64, NVIDIA Jetson; Windows package |
| Q-IND Time Vault          | 2026.3.0           | May 2026       | Docker, part of QUANTUM Industrial Studio                       |
| QUANTUM Industrial Studio | 2026.6.1           | September 2026 | Docker, Linux and Windows hosts                                 |

Optris support in every version is through the Optris OTC SDK 10.1.0 (Linux Ubuntu 24.04 amd64/arm64 packages and Windows binaries bundled). Camera models are those exposed by the SDK: PI 160, PI 200, PI 400/450, PI 640, PI 1M, Xi 80, Xi 160, Xi 400, Xi 410, Xi 440, Xi 640, Xi 1M.

## CIRA OPTRIS ACQUISITION

**2026.2.1** 2026-07-07 · patches through 2026-08-23

- **In-plane rotation** per camera ( $-270^\circ \dots 270^\circ$ ): the temperature matrix is rotated at write time, so shared memory, recordings, video and resolution reporting all reflect the mounted orientation.
- **Atomic shared-memory writes**: frames are written to a temporary file and swapped in place, so read-only and cross-mount consumers never observe a partial frame.
- **Reverse proxy** now takes the acquisition host from the ACQ\_HOST variable, allowing the web UI and video server to run on a different machine than the acquisition.
- Docker build process refactored; docker-compose profiles `prod` `acq` `sim` `simulation` clarified.

**2026.2.0** 2026-05-08 · patch 2026-05-11

- **Reconnection fix**: watchdog timestamps are reset on camera reconnection so stale values no longer trigger the connection monitor. Smoother recovery after network or USB drops.
- New `max_reconnection_attempts` camera parameter alongside `reconnect_interval_sec`.
- Minimal Optris FPS test script added for field diagnostics.
- Atomic JSON5 configuration writes and more robust configuration loading (2026-04-23).

## 2025.1.2 February 2026

- **Plant deployment package:** offline-ready frontend, configurable ports through `.env` (`FRONTEND_PORT`, `API_PORT`, `API_ROOT_PATH`, `DEPLOY_CONFIG_FOLDER`), clean volumes, deployment guide.
- **Windows native executable** of the acquisition (PyInstaller) running on the host, with frontend and video server in Docker; export scripts for image tarballs.
- Extended temperature range configuration and calibration file source directory (2026-01-13).
- USB cameras through a GigE USB server (W&T USB Redirector) documented and supported, with camera setup guide (2025-11-20).

## 2025.1.1 2025-11-05

- First versioned release. Multi-camera streaming to shared memory, MJPEG video server, web dashboard (Info, Saving, Display, Cam Control), REST API with Swagger.
- Simulation profile with recorded frames for four cameras of different resolutions; no camera needed to develop screens and pipelines.
- Autofocus and focus adjustment endpoints; calibration and range endpoints; flag settings saved to configuration.
- Dynamic palettes (`palettes.json5`) with strict palette enforcement; dual-range temperature slider; per-camera colormap selection.
- Direct frame saving and recording sessions from the API; in-memory temperature cache and improved error handling.
- Q-IND MQTT integration: heartbeat, status and per-camera tags (frame min/max/avg, FPS, disconnections, emissivity, internal temperatures).

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# Q-FORGE VISION

## 2026.3.2 August 2026

- **FLIR .cira temperature files** accepted as thermal input next to NPZ, so pipelines built on Optris data can also be tested against archives from other cameras.
- **New blocks:** `mjpeg_source` (non-blocking pipeline-to-pipeline video), `image_mosaic` (grid composition of several images), ArUco marker detection and visualization, webcam source.
- **FastSAM segmentation** and ONNX Runtime support for segmentation; MobileSAM export to OpenVINO IR.
- **Model resolution** per model folder: `TensorRT best.engine` → `OpenVINO best_openvino_model/` → `PyTorch best.pt`, with automatic fallback. Area filters for detections.
- **SHM stale guard:** the IR SHM Source reports `stale` and `error` when the acquisition stops producing; HTTP blocks report truthful status.
- MJPEG stream endpoint with health probe and subscriber limits; save block supports `YYYY/mm` folder formats.
- Pipeline editor: hover highlight and port-name badges, synthetic connections, JSON copy from the inspector, expression editor with node references, faster inspector rendering.
- Docker: separate base and runtime images, CPU-optimized dependencies, NVIDIA Jetson image on community L4T-PyTorch base, Windows build script with automatic docs generation.
- Security: API token and Swagger toggles, site security cookie marked `HttpOnly`, JWT handling aligned with QUANTUM single sign-on (July 2026).

- Runtime: parameter management and per-instance handling, default 4 runtime workers, drag-and-drop improvements.

## 2026.2.0 May – July 2026

- **Runtime service** (separate from the editor): publish pipelines as frozen snapshots with semantic revision; schedules `interval`, `on_new_frame` and `on_expression` (rising edge of a tag expression against live plant data). WebSocket runtime tab with statistics and slowest-node tracking.
- **Live stream ingest** (RTSP/HLS/HTTP, YouTube/Twitch/Vimeo resolver), video scrub bar and seek, MJPEG rebroadcast through `publish_mjpeg`.
- **New blocks**: `draw_hud`, `image_overlay`, `track_counter`, `merge_detections`, `dict_get`, `write_tags_from_dict`, `tick_pulse` (PLC watchdog), class smoothing, save array, polygon ↔ mask conversion, NPZ scalar extraction.
- **MQTT batching** for high-rate tag publishing; runtime event broker with `executed` / `errored` topics; q-forge-vision-client SDK for `OnExecuted` events.
- IR SHM Source: locking options, lock-timeout telemetry, configuration options; SHM write block.
- OCR parameters and MQTT tag handling extended; math expressions support comparisons, ternaries and boolean logic.
- Dataset management: orphan class handling, auto-labeling, dataset statistics endpoint.
- MCP bundle shipped in the image: the QUANTUM AI assistant gains Q-Forge tools automatically.
- Thermal detection pipelines for EAF and ladle processing added as templates (May 2026).

## 2026.1.0 March – April 2026 · first release

- Detect, Dataset, Train and Pipeline tabs; Drawflow node editor with typed ports (image, mask, polygon, bbox, contour, line, value).
- YOLO v8/v11 detection and training with live metrics; MobileSAM segmentation; polygon geometry, image processing, thresholding, morphology, contour and analysis block families; IR blocks (`png_gray_to_temperature`, `thermal_zones_overlay`, `ir_histogram`, `ir_thermal_palette`).
- NPZ radiometric input and IR SHM Source for CIRA Optris Acquisition.
- Docker profiles `cuda` `arm64` `jetson` ; PyTorch CUDA 12.4 wiring; shared-memory size configuration.
- AI assistant panel with e-mail and markdown support; reset-to-default for block parameters.

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# Q-IND TIME VAULT

## 2026.3.0 2026-05-10

- **Shape-preserving aggregates** (M4 style): downsampled buckets keep the real timestamps of their min and max samples, so charts keep the signal shape instead of stacking points at bucket edges.
- **Daily aggregate resolution** (1d) for long-range queries: about 8 years of data at a 3000-point visual target.

## 2026.2.0 2026-01-23

- Pre-computed aggregates for faster long-range queries; storage backend refactor with new configuration options.

## 2026.1.1 2026-01-10

- Cython-compiled production build for higher ingest throughput.

## 2026.1.0 2026-01-08

- Improved type coercion and error handling in tag serialization; graceful shutdown on SIGINT.

## 2025.3.1 / 2025.3.0 2025-11-12 / 2025-10-28

- Case-insensitive tag handling; tag-name sanitization for filesystem safety.

## 2025.2.1 2025-07-29

- Multiple MQTT consumers and topic arrays; console and rotating file logging; JSON5 configuration schema; fixes for disabled RabbitMQ consumers.

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# QUANTUM INDUSTRIAL STUDIO

Distribution 2026.6.1 bundles: q-ind-api 2026.5.1, q-mcp-server 2026.5.1, q-ind-plc-acq 2026.9.0, q-ind-time-vault 2026.3.0, q-ind-auth 2026.1.0, q-ind-ops 2026.1.0, q-ind-docs 2026.1.1, web site 2026.3.3.

## Site 2026.3.3 2026-09-06

- Time Vault viewer: responsive layout and phone mode (one-row header, secondary controls in a bottom sheet, legends collapsed by default); date pickers keep seconds on phones.
- Tags Monitor: compact controls row and in-viewport write dialog on small screens.

## Site 2026.3.2 / 2026.3.1 / 2026.3.0 February 2026

- Vault viewer default downsampling "Visual 5500" for faster chart loading.
- Pre-compressed static assets served by nginx; Screens IDE toolbar fixes on 1920×1080; group widget parameter fixes; external HTML screens served like built-in screens.

## Platform highlights 2026 January – September 2026

- **Acquisition sources** (q-ind-plc-acq 2026.9.0): plugin drivers S7, ControlLogix, Modbus TCP/RTU, OPC UA, IEC 60870-5-104, IEC 60870-5-101, IEC 61850, MTConnect and MQTT bridge, all created and tested from the web Devices screen; built-in S7, Modbus, OPC UA and signal simulators; schema-driven address resolution.
- **AI assistant** (q-mcp-server 2026.5.1): chat with streaming, configurable tool registry, per-application MCP bundles (Q-Forge Vision, ladle application), multi-provider LLM support, persistent memory and audit log.
- **API** (q-ind-api 2026.5.1): vault batch and zipped queries, CSV export, annotations with tags, images and navigation, Excel import/export of configuration, integrity tooling for vault files.
- **Operations** (q-ind-ops): events and actions, delays, crons and production analytics. **Alarms, Expressions** (virtual tags) and **Sequencer** services with their own web IDEs.
- One-line installer: `docker run --rm --pull always -v ${PWD}:/output antauto/q-ind-studio-dist` creates the deployment folder; `q-ind.sh` / `q-ind.ps1` for start, stop, update and logs.