

# GoPXL 1.5 – Release Notes

Firmware Version 1.5.52.78

Document Revision A

## Compatibility

- Devices supported:
  - Gocator Line Profilers: 2100 C/D version, 2300 C/D version, 2400, 2500, 2600, 6300
  - Gocator Snapshot Sensors: 3200, 3500 (including B version)
  - Gocator Line Confocal Profilers: 4000, 5500
  - Gocator 2D Smart Cameras: 1050, 1120
  - GoMax NX, ORIN, ORIN+
  - X64-based PC (Intel/AMD) with Windows 10 and Windows 11
  - Alvium G1 2.4MP to 16MP
- The following series and models are not supported:
  - Gocator Point Sensors: 1300
  - Gocator Line Profiler: 2342, 2880
  - Gocator Multi-point Profiler: 200
  - GoMax (pre-NX version)
- Minimum browser requirements:

	Google Chrome	Microsoft Edge	Mozilla Firefox
GoPXL Web UI	91+	91+	79+
GoHMI	80+	80+	74+

## New features

### *Tool Grouping*

Tool grouping organizes related tools into folders to simplify navigation in complex jobs, with support for collapse, descriptions, duplication, and quick management actions.

### *AVT Alvium GigE camera support (Beta)*

Support has been added for the AVT Alvium GigE camera models listed above, enabling modular 2D imaging systems with interchangeable optics and centralized processing. Acquisition requires a PC or GoMax running GoPXL Standard Utilities (free), while post-processing with the 2D Image tools requires GoPXL Pro Tools. Users can evaluate GoPXL Pro tools under replay mode for free. A licensed dongle is required to use Pro tools in live mode.

### *2D Object Detector (Beta)*

The new AI-driven Image Object Detector tool locates and counts objects within complex 2D workflows. It identifies the presence or absence of objects, provides individual probability scores, and defines bounding box coordinates for hand-off to downstream tools. Ongoing optimizations for performance and usability are planned for GoPXL 1.6.

<i>Image Line Count tool</i>	The Image Line Count tool analyzes repetitive features or edge transitions within a flexible region of interest. It automatically detects and counts edges, returning the total line count and precise spatial positions for verification.
<i>Tool Locking</i>	Password-based tool locking lets users control access to tools and tool groups, with read-only and hidden modes to protect proprietary logic and prevent accidental changes.
<i>Visualizer Measurement display</i>	Measurement values can now be displayed directly within the Visualizer. This provides improved visual clarity and feedback during inspection validation and demonstrations.
<i>Measurement Scale and Offset</i>	Measurements can now have a Scale and Offset applied directly in the tool output configuration, so users can apply quick value adjustments and have the updated values persist across the saved jobs.
<i>Frame Index in UI</i>	Frame index (and related stamp fields) now shows in the Displayed Outputs header, so users can track scan context without leaving the Visualizer. The UI control cycles through Frame index, Timetick, Encoder, and Encoder at Z.
<i>Audit Log</i>	Introduced foundational audit logging with structured event capture, local storage and syslog forwarding over UDP.
<i>Gocator 2525 support</i>	This release adds support for the Gocator 2525 model.

## Improvements

<i>Acquire page</i>	The Acquire page has been updated to improve the ease-of-use. This includes changing the order and grouping of elements.
<i>Emulator</i>	<p>The GoPxL Emulator accessible from GoPxL Manager can now load support files from accelerated sensors and multi-sensor systems.</p> <p>Note that Gocator 2D support files can not be loaded with the emulator. Instead, use a GoPxL instance to load the support file with.</p>
<i>User Data Input over Modbus &amp; ASCII protocols</i>	<p>Modbus and ASCII now support User Data Input (UDI). For Modbus, PLCs can send runtime variables using command ID 9, which latches a fixed 126-byte payload into the shared UDI buffer and returns success/fail.</p> <p>Over the ASCII protocol, users can set user input data via <code>setdata</code> or <code>setdatastring</code> to update the shared UDI buffer and confirm with OK/ERROR.</p>
<i>Reduced-size PROFINET modules</i>	PROFINET now offers multiple module sizes (16-800 bytes) selectable in TIA Portal. GoPxL detects the chosen module and sends only that dataset size, so users can reduce PLC memory use.

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*Advanced 2D AI workflows*

Multiple AI tools, including the Anomaly Detector and Classifier, can now operate simultaneously within a single job file. This enables a more powerful multi-tool AI workflow.

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## Bug Fixes

### General

*Sensor crash with Surface Blob tool routing*

Configuring the Surface Blob tool and routing its output to downstream tools could crash the sensor if an area filter is used.

*Calibration wizard crash with 3.2MP Active Area*

Calibration with a 3.2MP Active Area crashed the wizard. The fix also prevents the active area from shifting to the top-left corner after a power cycle.

*FTP save with total size limit*

Files could not be saved to an FTP server when the "Limit total size" option was enabled in Data Storage.

*Scan count reset on stop/start*

Gocator2D image count did not reset to 1 after stopping and starting scanning over PROFINET or EtherNet/IP.

*Replay Editor download and upload*

Replay Editor failed with "Not a suitable format" when downloading OMC, and crashed when an unsupported file type (such as .obj or .stl) was uploaded.

*Image Matrix tool instance limit*

The Image Matrix Code tool was limited to 10 instances; the cap has been lifted to match the Image QR Code tool.

*Job dirty after load*

When loading a job with a Feature Create tool, the job became "dirty" as if it had unsaved changes. This in turn prevented alignment.

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## Known Issues

### General

*Anchored regions*

Anchored tool regions may randomly shift when switching between Replay and Live mode.

*Higher CPU with pinned measurements*

Pinning measurement results in the UI leads to increased CPU usage and extra processing delay

*G2610 X-angle performance*

The processing latency of a G2610 increases dramatically when the X-angle of the transform is non-zero.

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<i>G2715 Active Area</i>	G2715 clips or drops profile data at the right edge after Active Area Z-range changes.
<i>Large replay upload</i>	Chrome and Edge browsers may run out of memory and crash during repeated upload of a large ~880MB replay file.
<i>G2650 performance</i>	Single-sensor full-X surface performance is reduced from ~3000 to ~2500–2600
<i>Pixel Format Acquisition</i>	Alvium color models may not display the full image correctly and limit their frame rate when using RGB8 or BGR8 pixel format.
<i>Acquisition Control Stability</i>	Alvium starting or stopping image acquisition via the acquisition start and acquisition stop command may trigger a fatal error, leading to a device disconnect.
<i>Alvium Disconnection</i>	Disconnecting an Alvium camera may result in a job failure error rather than a clean system recovery.
<i>Alvium I/O Configuration</i>	Alvium digital IO control settings are not saved in a job.
<i>Alvium Intensity Range</i>	The Alvium parameter sometimes allows entries that exceed the maximum range.
<i>Data Protocol Filtering</i>	The "Add Connections" filter in the GoPxL Data Protocol (GDP) does not currently support string-based filtering.
<i>Windows Pro Utilities installation</i>	A spinning wait cursor is shown for over 15 seconds before a window appears due to the large size of the file.
<i>Gocator 3210 upgrade</i>	<p>The free storage on a Gocator 3210 sensor may limit its ability to be upgraded to a different firmware version.</p> <p>Workaround: If upgrade fails, perform a factory restore and ensure that any tool-created files are removed (for example from Surface Pattern Matching or Surface Track) by adding the tool and then deleting any files from the tool's Operation drop-down. If you have previously run the Gocator Classic firmware on the sensor, make sure files created with these tools are also removed (you will need to downgrade first)</p>
<i>Interleaved Multiple Exposure</i>	On G2/G4/G5 sensors, enabling Interleaved exposure mode may result in dropped triggers, leading to missed data.
<i>Unmerged multiple exposures</i>	With Uniform spacing disabled, multiple exposures, enabling "Unmerged multiple exposure", and switching from Profile to Surface mode, data processing errors occur.
<i>GoMax upgrade with Anomaly Detector</i>	<p>It is not possible to directly upgrade a GoMax device from Gocator Classic 6.3 SR2 and earlier with the GoMax Anomaly Detector upgrade package (.dat file). This is due to an upgrade package size restriction.</p> <p>Workaround: First upgrade to GoPxL 1.1 before upgrading with the GoMax Anomaly Detector build.</p>

<i>Job loading/switching</i>	Loading or switching jobs may be slower than expected with small job files with less than 10 tools.
<i>PROFINET disable</i>	Once the service is enabled, it will remain running in the background until a power cycle is performed.  Workaround: Toggle off the service, save the job, restart the sensor, and load the job again.
<i>HMI Designer</i>	GoHMI projects that were opened, upgraded, or saved in the 1.4 or 1.5 Designer may no longer open, import, or upload correctly in older environments. For systems that must remain older versions such as 1.3, keep a separate copy of the project and maintain it in the matching older Designer version. If a project was already updated in 1.4 or 1.5, rework in the older version may be required to restore compatibility.

## Tools

<i>Object detection bounding box limit</i>	Max number of bounding boxes is limited to 16 per image.
<i>Tool performance</i>	The execution time of some tools may be slower than expected.  Workaround: Ensuring that the Web UI is closed can improve performance of some tools.
<i>Default region size</i>	When using surface tools on the output of Profile Part Detection, the default tool regions may be inappropriately sized and placed relative to the surface dimensions.
<i>Surface Stitch</i>	Stitching multiple large surfaces may cause GoPxL to become unresponsive due to excessive memory.
<i>Script tool</i>	The draw_lines() function does not render lines with the specified width. All lines appear with the default thickness.
<i>Script tool</i>	Drawing APIs may require an additional Surface input or an explicitly specified output index (e.g., output = 0) to ensure points and labels render correctly
<i>Data storage</i>	Due to memory constraints, G3520 with data storage enabled on device may become unresponsive.  Workaround: Accelerate sensor on PC with GoPxL.

## Utilities

<i>Track editor with multiple GoPxL instances</i>	When using multiple GoPxL instances on PC, it is not obvious which instance is which in the Track editor application's Source drop-down.
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<i>Pattern Editor</i>	After uploading a pattern from the Pattern Editor to GoPxL, the current scan data in the visualizer becomes hidden.
<i>Pattern Editor Compatibility</i>	<p>Patterns generated using the Image Pattern Locator algorithm currently cannot be edited within the Pattern Editor.</p> <p>Workaround: Renaming the pattern file extension to .hdb. Create directory C:\GoTools\GoPxLImagePatternMatching (if it does not exist). Moving the renamed file into this directory.</p>
<i>Replay Editor cross-device upload</i>	With data already in the buffer, uploading data recorded from a different device displays a "successfully uploaded" message followed immediately by an "error uploading file" message.

## GoHMI

<i>Default HMI App</i>	A factory restore is required to update the default HMI app.
<i>Updating HMI App on PC</i>	The browser cache must be cleared in order for a newly updated or created HMI app to show. In Chrome, open Developer Tools (Shift+Ctrl+J or F12), Right-Click on the browser Reload Button, and select "Empty Cache and Hard Reload". This is not required for GoHMI on sensor or GoMax NX.

## SDK and REST API Protocols

REST API version 3.x.x

GDP Protocol x.x.x

## SDK

### *GoResource API*

A new *optional layer* built on top of existing SDK components, GoResource API is a high-level C++ wrapper that eliminates REST boilerplate by providing typed getters/setters, caching, and schema validation for sensor resource access.

- GoResource: High-level access to single REST resources with typed getters/setters, caching, and schema validation
- GoResourceManager: Lifecycle management for resource instances with shared ownership via shared\_ptr
- GoSchemaValidator: Schema validation for resource data structures
- Resource Relations: Predefined relation types (Item, Scanner, SubTask, Content, Command, Action) for child resource enumeration
- New ResourceApi sample suite demonstrating GoResource API usage; ResourceCommands: Resource-based command execution; ResourceConfigureSensor: Sensor configuration

via resources; ResourceConfigureTool: Tool configuration via resources; ResourceSchema: Schema inspection and validation; ResourceSubscriptions: Resource subscription patterns; SystemUpgrade: New system upgrade management example

*GDP Message Enhancements* Support for color intensity data in surface and image messages; New GoGdpSurfaceBase class for unified surface handling; Enhanced pixel format support with intensity modes

*Discovery Protocol Updates* New discovery protocol options for improved sensor discovery

*GoRestClient* Expanded API with better transaction and response handling; Improved error handling and validation

*GoGdpString* Added position and decision fields with visualization support

*HTTP Server & Protocol* Support for HTTP POST commands with client-driven response format; Improved AsyncChannel with better flow control and error handling; Enhanced request parser for better protocol compliance

*RequestProcessor* Extended command handling for resource-based operations; Improved validation and error reporting

*AsyncChannel* Better lifecycle management and cleanup; Enhanced flow control for high-throughput scenarios; Fixes for race conditions in channel teardown

*HTTP Server* Support for ':' characters in resource paths; Improved request validation; Better error message propagation to REST clients

## **REST API**

*/tools/commands/ungroup* (Added) Command to ungroup a tool group by clearing child tool IDs

*/system/commands/actions* (Added) Support for system-level actions resource path

*/system/commands/upgrade-status* (Added) Query system upgrade status and progress over REST API

*/tasks/{id}* (Added) Sub-task enumeration support (SubTask relation type) for better task hierarchy navigation

*/tools/{toolId}/commands/{commandName}* (Added) Supports configurable response formats with client-controlled response content

<i>/controls/</i>	(Updated) The read methods have been removed from command endpoints across control protocol areas (HMI/EtherNet/IP, Modbus, etc.); only call method is now supported for command execution.
<i>/controls/hmi/parameters</i>	(Removed) The property group has been removed; appUrl, appName, connectVersion (and appStatus) are now direct properties of /controls/hmi root level.
<i>Documentation</i>	REST API definition (GoRestDef.h) expanded for new operations; API protocol manual reorganized for clarity; Version tagging and migration guide included.

## Functionality compared to Gocator 6.x firmware

This section lists features that are available in Gocator firmware versions 6.x but not available in GoPxL.

<i>GoMax Independent acceleration</i>	GoMax can only accelerate a single sensor or a single set of grouped G2 or G4/G5 sensors (formerly known as “buddy” system). Accelerating multiple sensors independently is not supported.
<i>More user interface translations</i>	GoPxL is only available with English, Chinese and Japanese user interface currently. More translations are planned for future releases.
<i>Analog, and Serial output</i>	Analog, and Serial output are not supported.
<i>Technician login</i>	Gocator 6.x Technician login with restricted UI is replaced by GoHMI functionality allowing creating a reduced access interface.
<i>G2 Tracking, Translucent spot detection</i>	The tracking functionality and translucent spot detection are not available.
<i>Surface Section and Polygon region</i>	Surface Section does not allow editing the section line by dragging end points and no polygon region is supported. These will be added in a future release.
<i>G2342, G2880, G200</i>	These models are not currently supported in GoPxL