

# Product Release Notice

# KINGSTAR 4.5

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## General Availability Release Date

March 22, 2024

## Product Overview

KINGSTAR is an all-software, complete “plug-and-play” PC-based Machine Automation platform for IoT and Industry 4.0. Key pre-tested and pre-integrated industrial machine components include software-based motion control, machine vision, programmable logic controller (PLC) and the industry’s only plug-and-play EtherCAT master that auto-discovers any vendor’s EtherCAT drive, IO or device and auto-configures the EtherCAT environment at startup. Built on the EtherCAT standard and supported by a real-time 64-bit Windows operating-system (RTOS) from IntervalZero, KINGSTAR empowers engineers to design, develop and integrate machine control applications or a system of controllers on a single Industrial PC. The KINGSTAR platform can replace all hardware with software-only motion controllers and machine vision positioning systems quickly and cost-effectively.

KINGSTAR version 4.5 allows developers to select only the functionality they need. KINGSTAR’s flexibility is provided through feature packages that allow you to grow your product at any time by adding functionality to the existing KINGSTAR Runtime.

KINGSTAR Runtime feature packages:

- Core packages for: 1, 2, 3 or 7 KINGSTAR cores
- Motion Packages for: Point to Point, Synchronization, Blending, and Kinematics
- Axis Packages for: 8, 16, 32 or unlimited axis
- High Speed Timer
- Multiple Masters
- Hot Connect
- Cable Redundancy
- Programmable Logic Controller (PLC)

# New Features & Updates

## Hardware

- Added support for ICOP: QEC-R00HU9S-N HID module. [KS-5481]

## General

- Incorporated RTX64 4.5 into KINGSTAR 4.5 [KS-5369; KS-5394]
  - Verified support for Windows 11 version 23H2.
  - Verified support for Intel® Elkhart Lake processors.
  - Added support for Intel® Advanced Matrix Extension (AMX).
  - Verified support for Intel® Xeon Scalable 4<sup>th</sup> generation processors.

## APIs

- RT/Win32: Added RegisterCallbackOnTransmit to enable a callback when the packet is being sent/received by the NIC, rather than after it is received and processed. [KS-5473]
- Added support for more custom PDO APIs. [KS-5342; KS-5375]
- Added the parameter mcFollowActPosDuringPowerOn to configure whether the target position should follow the actual position during the axis power-on process. [KS-5490]
- Added the parameters defaultCertificateLifeTimeInMonths and certificateRecreationThresholdInMonths to the constructors for configuring the certification lifetime of OPC UA server. [KS-5372]
- Added OverrideSlavePdoConfiguration to allow users to programmatically create the PDO mapping of a slave. [KS-5383]
- Added support for group motion APIs to use UpdateCommand. [KS-5406]

## Tools

- Added support for the Control Panel to select a Runtime instance ID when starting the Control Panel. [KS-5141; KS-5204]
- Added support for the Configuration Tool; Scope; Analysis Console to select a master instance when connecting to the KINGSTAR Runtime. [KS-5149; KS-5204]

- Added a topology view to the Diagnostic Tool to display the connected devices graphically, facilitating easy monitoring of connectivity and connection status. [KS-1514; KS-5365]
- Added support for Configuration Tool to send initialization commands during IP, PS or SO transition states. [KS-4916; KS-5408]

## Improvements

### Hardware

- Supported greater bit lengths based on Beckhoff's EL6695 Revision 6. [KS-4759]

### APIs

- The InVelocity flag will change to "false" when the velocity of MoveAxisVelocity is updated. [KS-1756]

### Tools

- Configuration Tool
  - When creating simulated IOs, if their indexes match the ones in the project IOs, the vendor, product, revision and input/output lengths of the created simulated IOs will be applied with the ones from the matched project IOs. [KS-5145]
  - When creating simulated axes, if their indexes match the ones in the project axes, the vendor, product, revision and resolution of the created simulated axes will be applied with the ones from the matched project axes. [KS-5145]
- Analysis Console
  - To prevent overloading standard messages, the Async slave fail message will be filtered when the primary or secondary cable is broken in redundancy. [KS-5039]
- ESI Import Tool
  - Allowed users to edit the data type of PDO entries, which can be used by the Configuration Tool to create IO variables. [KS-4962]
  - Allowed users to add CoE initialization commands from the object dictionary. [KS-4309]

# Resolved Issues

For a list of all resolved issues addressed in this KINGSTAR 4.5 release, please refer to the [Product Release Notes](#).

# Availability

KINGSTAR 4.5 is available beginning March 22, 2024 through Partners and by contacting Sales: [sales@intervalzero.com](mailto:sales@intervalzero.com).

We look forward to any comments and feedback. If you have any recommendations, or wish to suggest any product enhancements, please contact Product Management at: [productmanagement@intervalzero.com](mailto:productmanagement@intervalzero.com).