IntervalZero

Product Release Notice

RTX64 4.3

General Availability Release Date

November 11, 2022

Product Overview

RTX64 4.3 is the latest 64-bit version of IntervalZero's market-leading hard real-time software products. This release provides a number of new features, usability improvements, and resolved issues.

To see a full list of all new features and a detailed list of new APIs added and issues resolved, please refer to the product release notes, found in the online RTX64 4.x Help.

Key Features

RTX64 Runtime

General

- Adds support for 12th Gen Intel® Core™ processors. (10522)
- Adds support for Intel® Thread Director (ITD) in the Subsystem to capture a thread's ideal core.
- Adds support for system core classes through APIs and thread monitoring events. (10544)

Subsystem

- Adds a new *Object Name* field to the text output for the Handle Close monitoring event, which holds the name of the object whose handle is being closed. (10358)

Network and Drivers

- Incorporates the RTX64 Intel 2.5 Gigabit Ethernet Controller I225/I226 Network Interface driver (RtNalIGC), which provides support for Intel 2.5 Gigabit Ethernet Controller I225/I226 devices. See the *RTX64 Supported NICs* document, available from the Customer Center, for a list of supported devices.

Tools and Utilities

- Adds Find dialog functionality to RTX64 Console that allows you to search console output. (10314)
- The RTX64 Monitor utility has been redesigned to add functionality and improve usability:
    - Monitoring session controls (play, pause, stop) are now always accessible (these were previously only available on one screen).
    - Monitoring status is now always visible (status was previously only visible on one screen).
    - You can choose which events to monitor and create session triggers from events on the same screen.
    - Session triggers can be created through drag-and-drop.
    - Adds support for stop triggers (triggers that automatically stop a monitoring session).
- The Control Panel now has predefined sets of monitor events on the Change monitoring settings page. You can choose one of the sets of events, such as *Collect memory events*, to only collect events specific to that area of focus. (10461)

RTX64 SDK

General

- Adds Visual Studio 2022 support with development and debugging features. The RTX64 4.3 SDK includes the RTX64VSSupport2022 VSIX package, which includes IntervalZero Real-Time Debugger and templates for creating RTSS applications and RTDLLs for Visual Studio 2022.

Application Debugging

- Adds support for several of the Visual Studio 2022 breakpoint features:
    - Dependent Breakpoints

- Temporary Breakpoints
- Force Run to Cursor
- Drag and Drop Breakpoints
- TracePoint

Real-Time APIs

- Adds a new real-time APIs RtQuerySystemPerfCaps and RtQueryThreadPerfIdealProcessor for use on 12th Gen Intel® systems that allow the user to query information about the performance capabilities of Subsystem-controlled processors, as well as the ideal processor for a specific thread.
- Adds a new trigger kind MF_TRIGGER_STOP_MONITORING to Real-time structures RT_MONITOR_TRIGGER_CONTROL and RT_MONITOR_CUSTOM_TRIGGER_CONTROL.

NIC Driver Real-Time Network Device (RTND) Structures and Enumerations

- Adds new fields to RTND_MEDIA_SPEED to retrieve the speed of the interface Ethernet connection:
  - *RtndMediaSpeed2500* indicates the Ethernet link speed is 2.5 GBPS.
  - *RtndMediaSpeed5000* indicates the Ethernet link speed is 5 GBPS.

Managed Framework APIs

- Adds new member StopMonitoring (value 2) to Managed enumeration Subsystem.TriggerKinds. This member is used to configure monitor session stop triggers.
- Adds new properties, NewHFIClassID and OldHFIClassID to Managed class MonitorEventContextSwitch for 12th Gen Intel® system information.
- Adds new property HFIClassID to Managed class MonitorEventThreadDestroy, which holds the Intel® Hardware Feedback Interface (HFI) Class ID of the associated real-time thread at the time the thread terminated.

Samples

- Adds Visual Studio 2022 projects and solutions for all RTX64 samples. (10420)

Issues Resolved

RTX64 Runtime

Installation

- Resolves an issue where the Advanced Installer Sample would not automatically load the RTX64 Merge Modules when they were installed to a non-default directory. (10251)

Tools and Utilities

- Resolves an issue where RTX64 Analyzer did not accurately report Windows 11/10 feature versions. (10510)
- Resolves an issue in the RTX64 Monitor utility where the *Number of pre-trigger events to collect* entry field remained configurable even when no session triggers were selected. (10435)
- Resolves a user experience issue with the RTX64 Monitor utility where session triggers appeared to be set when in fact they were not. (10422)
- Made improvements to the control for setting the RTX64 Console window buffer size on the Configure Real-Time Application Output page in the Control Panel, including improved error checking when a non-valid value is entered. (10465)
- Resolves issues where starting and stopping a monitoring session repeatedly would cause unexpected exceptions. (10239)
- Resolves an issue where the RTX64 Console would not output any data if the Real-Time Subsystem was configured to auto-start. (10345)
- Resolves an issue where monitoring session folder names included a time stamp in Greenwich Mean Time (GMT) instead of the user's local time zone. (10518)
- Improves the KSRTM (Kernel System Response Time Measurement) utility to display CPU data in decimal format rather than hex. This is consistent with SRTM (System Response Time Measurement) output. (10484)
- Resolves an issue where the Memory Heap Utilization Graph in Tracealyzer sometimes displayed a 'double-counting' of Local Memory allocations, reflecting both the user applications' memory requests (such as calls to RtAllocateLocalMemory) and the creation of the Local Memory Pools from which memory is allocated to user applications. (10356)
- Resolves an issue where monitoring events *SRI to Windows* and *SRI to Windows Return* were missing from the list of events to collect in the Control Panel and RTX64 Monitor Utility. (10705)

RTX64 SDK

Application Debugging

- Resolves an issue where the IntervalZero Real-time Debugger would sometimes throw an unexpected NULL access violation when stepping through code. (10431)
- Resolves an issue where some processes frozen by Watchdog timeout appeared to be active in the Visual Studio *Available Processes* list in the Attach to RTSS Process dialog when they should have been grayed-out. (10217)
- Resolves an issue where the IntervalZero Real-Time Debugger XAML files would revert to the previous major version when multiple SDKs were installed. (10374)

Tools and Utilities

- Resolves an issue where Tracealyzer sometimes opened more events from a monitor session file (.monx) than were contained in the converted text file from the same session. (10428)
- Resolves an issue where Tracealyzer would create incorrect timestamps when FirstEventCount is a nonzero number. (10429)

Supported Windows APIs

- Resolves an issue where GetModuleHandleEx failed in some instances when it was expected to succeed and caused an exception instead of failing with an error code. (10049)
- Resolves an issue where CreateFile failed with an incorrect error code when built in the RtssDebug or RtssRelease configurations and given a pathname that was too long. (10253)
- Resolves an issue where WaitForSingleObjectEx always returned WAIT_OBJECT_0, even in instances where that wasn't correct. (9293)
- Resolves an issue where WaitForSingleObjectEx would not return the object ID of the object being waited on. (10187)

Real-Time APIs

- Resolves an issue where RtfwGetRTX64Devices would fail on some Skylake machines. (10433)
- Resolves an issue where RtfwGetRTX64DevicesEx would succeed but not return any information. (10433)

- Resolves an issue where RtMonitorEnableComponents always returned TRUE, even when it was passed an invalid parameter. (10762)

Managed Framework APIs

- Resolved an issue where method ResetToStart in Managed Framework class EventReader did not return to the true start of a session. (10421)

Availability

RTX64 4.3 is available beginning November 11, 2022 through Partners and by contacting Sales: 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.