

# Product Release Notice

## RTX64 2014

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### General Availability Release Date

September 5, 2014

### Product Overview

RTX64 2014 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. The software can be downloaded [here](#).

### Release Highlights

- The RTX64 2014 Real-time Subsystem (RTSS) includes a monitoring infrastructure that allows developers to profile the behavior of RTSS applications across all RTSS processors. There is also a simple utility to convert output to a readable text file.
- A set of new RTAPI calls allow for configuring of proxy thread priorities, providing more control over the interaction between Windows and RTSS.
- An RTSS Task Manager utility provides the ability to view active real-time processes (.rtss) and Windows processes linked to RTX64 (.exe). Users can start new tasks and terminate running tasks.
- Multiple RTX64 SDKs versions can now exist on the same development system.
- The RTX64 2014 WinDbg Extension extends Microsoft's 64-bit version of WinDbg and provides a way to analyze and interpret the state of RTSS processes and the subsystem.
- An RT-TCP/IP Virtual Network adds a virtual point-to-point connection between Windows and RTSS. It emulates a local area network connection between Windows and RTSS with no additional hardware required.

# Features and Resolved Issues

RTX64 2014 includes the following new features and resolved issues:

## Subsystem

- Adds a monitoring infrastructure to RTSS allowing developers to profile real-time processes and subsystem behavior. (3838, 2698, 2699, 2839)
- Adds AVX 2.0 support within RTSS. (2013)
- Improves RTSS notification messages by logging them in the Windows Event Viewer. (2235)
- Improves thread priority mapping between Windows processes and how they interact with RTSS. (2057)
- Resolves an issue where RTSS adds invalid error information to the Windows Event Viewer. (2373)
- Resolves an issue where RTSS incorrectly calls DLLmain when terminating a faulting process. (2298)
- Resolves a blue screen issue found when the subsystem cleans up a terminating RTSS process which uses local memory and implicitly-links in an RTDLL using the Microsoft C- Runtime library. (2506)
- Resolves an issue where RTSS incorrectly determines the number of available system processors if running on a Windows Embedded image generated to support multiple processor types. (2532)

## Tools and Utilities

- Provides a Task Manager tool for viewing active real-time processes (.rtss) and Windows processes linked to RTX64 (.exe). Users can start new tasks and terminate running tasks. (153)
- Provides a Monitor tool for starting and stopping monitoring sessions, and generating text log files of monitoring results. (2699)
- Improves the Analyzer to provide status information about Virtual Network components. (2662)
- Enhances the StampTool by adding a /Info flag allowing users to get licensing information about a binary. Users can see if a binary is stamped and with what SDK version. (2186)
- Improves tool error messages when RTSS binaries are incorrectly stamped or a user does not have the proper permissions. (2624, 2210)

- Enhances the control panel to provide the ability to disable the logic used by RTSS to prevent Windows power management of processor speeds. (2694)
- Simplifies the control panel exception handling section. (2601)
- Improves the control panel, allowing for modifications of Network interface friendly names. (2183)
- Enhances the Activation and Configuration utility to distinguish between what licenses exist and what components are installed. (1722)
- Resolves an issue where the Latency View log file does not correctly display the number of samples logged. (1667)
- Resolves an issue where the Latency View tool does not provide a proper error message when child processes are abnormally terminated. (1673)
- Resolves an issue where RTSSrun shows an incorrect error message if a user tries to launch a Windows process. (2078)
- Resolves an issue where Analyzer misidentifies the processor type when gathering system information. (2189)
- Resolves an issue where the control panel's Add Interface dialog lists NIC cards that are already associated with an interface in the list of devices to choose. (2221)
- Resolves an issue where RTSSrun usage dialog is displayed twice. (2515)
- Resolves an issue where the control panel does not provide the proper restart message when a NIC interface is removed. (2597, 2664)
- Resolves an issue where the Rtx64Config command line utility erroneously reports an RTX64-controlled device as being under Windows control (2634)

## SDK

- Adds support for multiple RTX64 SDKs on the same system through common tools and versioning of the build environments. (2719)
- Adds an RTAPI call RtGetEnabledXStateFeature which allows developers to determine the capabilities of the system processor. (2013)
- Adds support for the Windows API call TryEnterCriticalSection, which attempts to enter a critical section without blocking. If the call is successful, the calling thread takes ownership of the critical section. (2319)
- Adds support for GetModuleFileName within RTSS, which retrieves the fully qualified path for the file that contains the specified module. (2635)
- Adds RTAPI calls to support monitoring:
  - RtGenerateEvent - Allows for generation of user defined events within an RTSS process.

- RtMonitorControl - Allows for programmatic control of monitoring within an RTSS process.
- Adds RTAPI and RTKAPI calls to support getting and setting of priorities for Windows proxy threads (2057). New API calls are as follows:
  - RtSetProxyThreadPriority - Sets the priority of an RTSS proxy thread from a Windows process.
  - RtGetProxyThreadPriority - Gets the priority of an RTSS proxy thread from a Windows process.
  - RtkSetProxyThreadPriority - Sets the priority of an RTSS proxy thread from a Windows kernel driver.
  - RtkGetProxyThreadPriority - Gets the priority of an RTSS proxy thread from a Windows kernel driver.
- Adds support for RTNAPI calls RtnIsStackOnline and RtnIsDeviceOnline, allowing an RTSS process to check the state of the stack or device before attempting to use. (779, 780)
- Adds a managed code interface to support the configuration of monitoring.
- Provides functionality in the managed code framework to enable or disable the logic used by RTSS to prevent Windows power management of processor speeds. (2694)
- Provides managed code functionality allowing Windows processes to enumerate RTSS processes. (1581)
- Resolves an issue where the defines MAXNUM\_RTPROCESSORS and MAXNUM\_TOTALPROCESSORS in RTAPI.h are incorrect. (2530)
- Improves RTX64 loader to modify the preferred base on loading of an RTSS image. (954)
- Resolves an issue where RTK functions cannot be called from a dispatch routine. (2642)
- Improves performance of the RTAPI calls RtDisableInterrupts and RtEnableInterrupts by changing them to MACROS in RTAPI.h. (237)
- Resolves an issue where RTPProcess.Start only works if called with a single string as a parameter. (2350, 2786)
- Resolves an issue where the managed code framework throws an incorrect exception if a user who is not a member of an RTX64 group tries to create an interface. (VAN2432)
- Resolves an issue where RTAPI calls RtGetModuleBaseName truncates the last 5 characters of the base name. (2682)

## Debugging

- Provides a WinDbg Extension for the 64-bit version of the Microsoft's WinDbg tool. (2390)

## Samples

- Provides simple networking samples to show basic functionality for TCP and UDP. (2742)
- Resolves an issue where some of the sample binaries require the Microsoft C Runtime redistributables to be installed on a system before the binaries could be run. (2549)
- Resolves an issue with the RtEthernetFiler sample using the incorrect size when transmitting a frame. (2166)

## Installations

- Resolves an issue where the Runtime uninstall does not remove all plug-and-play driver files from the Windows driver store. (2033)
- Resolves an issue where the RTX64 SDK uninstall does not always remove the root SDK directory. (2102)
- Resolves an issue where the Windows Device Manager shows the RTX64 device properties tab after uninstalling RTX64. (2244)
- Resolves a stability issue during uninstall when the server and control panel are open. (2505)
- Resolves an issue during uninstall where the subsystem is not stopped correctly. (2519, 2550)

## RT-TCP/IP Stack

- Provides a Virtual Network which adds a virtual point-to-point connection between Windows and RTSS. (2394, 2606)
- Adds support for Link Status within the stack and drivers, which can be configured in the control panel. (2379, 2812)
- Resolves stability issues found when repeatedly starting and stopping the stack. (2173, 2201)
- Resolves an issue where RtssPing will hang when calling the Local host IP address 127.0.0.1. (2370)
- Resolves an issue with how the stack uses critical sections internally which in turn causes the call sendto to hang. (2552, 2516)
- Resolves an issue where the call sendto is not always returning the correct error code. (2645)

- Resolves an issue where multiple interfaces on the same subnet do not work correctly. (2670)
- Resolves an issue where if the stack is running when the system stops, Windows is unable to generate a dump file. (2589)
- Resolves an issue where the socket option SO\_LINGER does not working correctly. (2673)
- Resolves an issue where the RtssServer sample causes a Windows STOP if the I flag is passed in as an option. (2618)
- Resolves an issue where the RtssClient sample does not correctly handle the UDP flag. (2144)

### Additional Driver Downloads

- Rt8257x real-time network driver adds support for the Intel® I217LM PHY 1000BASE with C220 Ethernet Controller and the Intel® I218LM PHY 1000BASE with Ethernet Controller. (3100, 2512)
- RtlGB real-time network driver adds support for the Intel® I211 PCIe 1000BASE Ethernet Controller. (2401)
- RtE1000 real-time network driver adds support for the Intel® 82579LM Gigabit Network Adapter and Intel® 82579V Gigabit Network Adapter. (3104)

## Activation & Licensing

The IntervalZero product licensing system allows for flexibility in how features are activated and deployed. Please [click here](#) for an overview of IntervalZero product licensing.

For additional information on deployment, refer to the RTX64 Deployment Guide located on the [IntervalZero web site](#).

## Availability

RTX64 2014 is available beginning September 5, 2014 through Partners and by contacting Sales: [sales@intervalzero.com](mailto:sales@intervalzero.com) or (781) 996-4481.

We look forward to 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).