

# Product Release Notice

## RTX64 2014 with Service Pack 1

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### General Availability Release Date

February 20, 2015

### Product Overview

RTX64 2014 with Service Pack 1 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

- Full support for Visual Studio 2012 and 2013, including application and DLL templates, code snippets, debugging and Microsoft C Runtime support.
- Provides a Kernel System Response Timer Measurement (KSRTM) Utility to measure latency from a timer interrupt to the start of an Interrupt Service Routine (ISR).
- Optimized monitoring event collection to reduce impact on running systems, and support for custom monitoring events in Windows processes through an RtGenerateEvent API.

### Features and Resolved Issues

RTX64 2014 with Service Pack 1 includes the following new features and resolved issues:

#### **Subsystem**

- Optimizes monitoring event generation in real-time code paths. (2870)
- Resolves an issue regarding not disabling Intel SpeedStep® logic while a system is running on battery power. (3578)
- Resolves an issue regarding a starvation exception causing the RT-TCP/IP Stack to freeze the subsystem. (3338)
- Resolves an issue regarding potential system reboot when shutting down a system with real-time applications running. (3386)
- Resolves an issue regarding system hangs on exiting of a real-time application that did not properly clean up explicitly-loaded RTDLLs. (3430)
- Resolves an issue regarding the RT-TCP/IP Stack not automatically starting properly when the stack was configured to automatically start with the subsystem. (3597)

- Resolves an issue regarding the subsystem not returning AVX data in the correct registers. (3558)
- Resolves an issue regarding the SafeNet dongle driver causing unnecessary network activity when checking for a remote license server. (3513)
- Resolves an issue regarding multiple running Windows Real-time Kernel drivers being unable to properly interact with the subsystem without interfering with each other. (3547)

## Tools and Utilities

- Provides a Kernel System Response Timer Measurement (KSRTM) Utility to measure latency from a timer interrupt to the start of an Interrupt Service Routine (ISR).
- Resolves these issues regarding the **Activation and Configuration** utility:
  - Resolves duplicate Tooltips appearing for different buttons in the main dialog. (3372)
  - Resolves an issue regarding activation of the SDK on a single processor system. (3406)
- Resolves these issues regarding the **RtssRun** utility:
  - Resolves slow launching of real-time applications when the licensed dongle is not inserted at boot time. (1595, 2257)
  - Resolves an issue where the affinity mask option was not working correctly. (3562)
- Resolves these issues regarding the **Control Panel**:
  - Resolves issues regarding default values not being set for text boxes with cursor focus. (3245)
  - Resolves an issue regarding users being able to set the **Link Status Thread Ideal Processor** to a value greater than the number of actual processors on the machine. (3131)
  - Resolves an issue regarding the **Reset to Factory Default** button not resetting the **Change the processor the Timer System runs on** setting. (3262)
  - Resolves an issue regarding displaying an incorrect error message when **Local Memory Expand Size** is changed to an invalid value. (3297, 3272)
  - Resolves a mismatch in units for the **Default Thread Time Quantum** setting in the Control Panel and its Framework equivalent. (3233)
- Resolves these issues regarding the **Monitor** utility:
  - Resolves an issue regarding always displaying a Process ID of 0 for proxy-thread-related events. (3173, 3485)

- Resolves an issue regarding Create/Destroy proxy thread events not containing the *Proxy* prefix in the event logs. (3171)
- Resolves an issue regarding not providing a Thread ID or Process ID for threads whose time quantum expired. (3216)
- Resolves an issue regarding thread time quantum being displayed inaccurately in monitor events. (3694)
- Resolves an issue regarding the monitor events MV\_EVENT\_INTERRUPT\_LINEBASED\_ATTACH and MV\_EVENT\_INTERRUPT\_MESSAGEBASED\_ATTACH not including the Thread ID of the associated Interrupt Service Thread (IST). (3670)
- Resolves issues regarding the following event types not appearing in event logs:
  - Fast Semaphore events (3626)
  - Interrupt Service Thread (IST) Handler events (3625)
  - Time Quantum Expire events (3623)
- Resolves an issue regarding incorrectly displaying the set of enabled events. (3283)
- Resolves these issues regarding the **Stamp Tool**:
  - Ensures support for binaries that contain object files built from multiple versions of the RTX64 SDK. (3343)
  - Resolves an issue regarding RTSSDebug configurations that include C++ implementations of Try/Catch statements failing to compile when using the Intel Compiler version 14. (3601)
  - Resolves an issue regarding some output messages missing a trailing newline character. (3360)
- Resolves these issues regarding the **Task Manager**:
  - Resolves an issue regarding slow startup. (3387)
  - Ensures that the full path of a RTSS application binary is shown. (2819)
  - Resolves an issue regarding application termination when open at the same time as the RTX64 Control Panel and the RT-TCP/IP stack is re-started several times in succession. (3089)
  - Resolves an issue regarding displaying duplicate entries for an RTSS application whose launch started the subsystem. (3642)
- Resolves an issue regarding RtxServer sometimes failing to write to the log file when **log data to file** is enabled. (2504)

- Resolves an issue regarding winsock2.h and ws2tcpip.h includes not being added to the header file when **RT-TCP/IP support** was selected in the RTX64 template dialog (3728).
- Resolves an issue regarding RtssArp -s failing when a MAC address specified contains dashes. (3418)
- Resolves an issue regarding the RTX64 properties tab appearing in the Properties dialog for devices that are not under RTX64 control. (2681)

## SDK

- Provides Visual Studio templates for creating RTSS application and Real-Time Dynamic Linked Libraries (RTDLLs).
- Provides a collection of Visual Studio code snippets for Real-Time API calls that developers can insert in their code.
- Provides an API call, RtEnumProxyProcesses, to enumerate proxy processes associated with Windows processes linked to RTAPI.
- Provides two new Winsock API calls:
  - inet\_ntop – Converts an IPv4 or IPv6 Internet network address into a string in Internet standard format.
  - inet\_pton – Converts an IPv4 or IPv6 Internet network address in its standard text presentation form into its numeric binary form.
- Provides support to generate custom events using RtGenerateEvent within Windows applications. (2972)
- Provides a Preprocessor define UNDER\_RTSS\_UNSUPPORTED\_CRT\_APIS that causes all unsupported C Runtime API calls to generate a warning on building of your RTSS application. (3713)
- Ensures that the function RtndTransmit returns the correct error if no link is found. (3117)
- Resolves an issue with the function RegQueryValueEx where memory was not always freed successfully. (3353)
- Resolves an issue regarding executing RtPrintf at high rates causes a Blue Screen. (3427)
- Improves error checking in Heap management APIs. (3428)
- Resolves an issue regarding RtTerminateProcess being called in the wrong thread context. (1992)
- Resolves an issue regarding RTX64 calling DLL\_PROCESS\_DETACH when RtTerminateProcess was called on a RTSS process linked to an implicit or explicit RTDLL. (3409, 3515)

- Resolves an issue regarding the return value for WideCharToMultiByte not counting the NULL terminator. (3593)
- Resolves an issue regarding a delayed return from RtCloseHandle when called in a process with an implicitly-linked RTDLL. (3289)
- Resolves an issue regarding some RTK APIs not always returning the correct last error regardless of a function's success or fail outcome. (3774)
- Resolves an issue regarding NIC driver source not building due to undefined macros. (3502)

## Debugging

- Extends Visual Studio 2012 and 2013 to support debugging of Real-time applications:
  - Adds support for the application **Start Without Debugging** option. (2643)
  - Adds local debugging support through launch. (1577, 3211)
  - Adds remote debugging support through launch. (83, 3213)
- Resolved an issue regarding setting a breakpoint in a RTDLL that was loaded multiple times but only freed once. (2724)

## Samples

- Fixes a typo where the preprocessor macro `_M_AMD64` includes an erroneous trailing underscore: `_M_AMD64_`. (3217)
- Adds a parameter to the SRTM sample to make it multiple-instances aware. (3535)
- Resolves an issue regarding hardcoded paths being used in the *Rtdll* sample project. (3402)
- Resolves an issue regarding the *IPCLatency* application displaying an error when a forward slash (/) is specified. (3315)
- Resolves an issue regarding *RtTcpipClient* calculating percentage results from total packages expected to be sent rather than total packages actually sent. (3239)
- Resolves an issue regarding the *RtPerfMonitor* and *RtPerfMonitorEx* projects not being simultaneously buildable via batch. (3202)
- Resolves an issue regarding the *IntelProE1000* sample program causing an exception when it was run. (3045)

## Installations

- Resolves issues regarding uninstalling RTX64 on Chinese versions of Windows 7. (3390)

- Resolves an issue regarding the Runtime and SDK installs creating inconsistent environment variables. (3468)

## RT-TCP/IP Stack and Drivers

- Resolves an issue regarding the RT-TCP/IP Stack not automatically starting when licensed to a dongle and configured to auto-start. (3320)
- Increases the size of datagram packets used by the RT-TCP/IP Stack from 8k to 64k. (3480)
- Provides support for IGMPv3, MLDv2, and IPV6\_MULTICAST\_LOOP socket options in the RT-TCP/IP Stack. (3573)
- Incorporates Intel 82579 controller support into the RtE1000 driver, which was previously released as a standalone driver. (3436)
- Resolves an issue regarding the **VirtualNIC** interface not being able to be re-added through the Control Panel if it was deleted. (3132, 3140)
- Resolves issues regarding pings not always succeeding when using the Rt82580 driver. (2650)
- Resolves an issue regarding the RT-TCP/IP Stack closing a handle in an incorrect process context. (3383, 3399)
- Increases the default number of send/receive UDP datagrams in the Stack from 32 to 1024. (3615)
- Resolves an issue regarding running *RtTcpipServer* and *RtTcpipClient* on a loop-back connection causing a Blue Screen. (3512)
- Resolves an issue regarding not all of the interfaces of an Intel® I350 Quad/Dual PCIe Copper Ethernet Controller would start once the card was configured. (3461)
- Resolves an issue regarding the Client/Server sample returning *Bad IP header* errors when the RtRtl8168 driver is used as the client or server. (2383)
- Resolves an issue regarding the RT-TCP/IP Stack outputting *!UnLock: Lock is Corrupt* errors. (2380)
- Resolves an issue regarding Realtek drivers failing to initialize when two or more interfaces were enabled. (2295)
- Removes the limitation that the highest physical address of contiguous memory allocation could not be more than 0xFFFFFFFF for all drivers, except Realtek. (2292)
- Resolves an issue regarding the RtIGB driver not allocating from cache, which may result in performance issues. (3412)

## 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 with Service Pack 1 is available beginning February 20, 2015 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).