

Intel® VTune™ Amplifier XE 2013 Release Notes for Windows* OS

Installation Guide and Release Notes

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1 Performance Profiling with Intel VTune Amplifier XE

Please visit our [web site](#) for training videos, technical articles, documentation and support.

2 What's New

Update 16 - **Recommended**

- Graphical interface for remote data collection on Linux* systems via SSH
- Simplified User API collection setting for native analysis on the Intel® Xeon Phi™ coprocessor
- Grouping options in Timeline pane
- Event reference help for Intel microarchitecture code name Haswell and Intel® Xeon Phi™ coprocessor (code name: Knights Corner)
- Collection data limit option supported for hardware event-based analysis types
- Usability improvements for the structure of hardware event-based sampling analysis types to introduce cross-CPU basic configurations and separate advanced CPU-specific analysis configurations
- Search functionality for the grid views added to the toolbar

- Support for external data collection launched from the VTune Amplifier with the Custom collector target configuration option or-custom-collector command line option.
- An option in the graphical and command line interface to import a csv file with the externally collected data into an existing VTune Amplifier result. Importing a csv file does not affect symbol resolution in the existing result.
- Support for importing a csv file that does not specify a hostname for the target system but contains time stamps represented in the UTC format. In this case, the VTune Amplifier displays global data (not attributed to specific threads/processes) only.
- Single HTML help format across Linux* and Windows*.
- Bug fixes

Update 15 - **Optional** update unless you need the new features listed below:

- Ability to change the focus function from the Caller/Callee panes
- Ability to collapse recursive functions in the Call Stack pane
- Improved Frame Rate Histogram representation per frame domain in the Summary window
- Automatic positioning of the hottest line in the Source/Assembly window after drilling down from the grid
- Support for importing global discrete counters collected externally

Update 14:

- GPU OpenCL™ kernel analysis extended with memory transfers, visualization of OpenCL API and computing queue
- Standalone interface improved to provide more workspace for the analysis results
- Event-based stack sampling analysis of system processes for kernels and drivers
- Ability to cache source files and explore collected performance statistics later even if the source file has been changed
- Ability to show kernel stacks as continuation of user stacks
- Support for Intel(R) microarchitecture code named Silvermont

- Support for Intel(R) Xeon(R) E5-2600 v2 & E5-1600 v2 processors based on the Intel microarchitecture code name IvyBridge-EP
- Simplified syntax for searching binary and symbol files with the `--search-dir` and `source-search-dir` command line options

Update 13:

- Support for ITT pause/resume APIs on the Intel® Xeon Phi™ coprocessor
- Support for adding external collection data (in the CSV format with a predefined structure) to the VTune Amplifier analysis result collected in parallel with external statistics.
- SSH-based remote collection via `amplxe-cl`
- Support for Microsoft Windows* 8.1 operating system and integration with Microsoft* Visual Studio* 2013 IDE
- Bug fixes

Update 12:

- OpenCL* kernels tracing on Intel® Processor Graphics
- Bug fixes

Update 11:

- Support for scientific data representation in the grid
- Source Function Stack grouping level enabling more accurate result comparison in the Top-down Tree pane
- Change Stack Layout option in the Top-down Tree and Bottom-up panes to switch between chain and tree types of stack layout
- Support for identifying function boundaries using static binary analysis methods for binaries without symbol information
- Bug fixes

Update 10:

- Bug fixes

Update 9:

- Source and assembly data available in the command line reports
- Advanced Hotspots analysis (formerly, Lightweight Hotspots) introducing several collection levels
- Total metric for flat groupings in the Source/Assembly panes
- Overhead and Spin time classification for GCC* and Microsoft OpenMP* runtimes
- Support for Hotspots, General Exploration and Bandwidth analysis types on the Intel® Xeon Phi™ coprocessor (except for the user API analysis)
- GPU analysis for Intel Processor Graphics based on hardware metrics such as Execution Units (EU) Array Active/EU Array Stalled/EU Array Idle, GPU Memory Bandwidth, GPU L3 Cache Misses, and others
- GPU analysis based on DirectX* pipeline events and used to correlate CPU/GPU usage and identify whether an application is CPU or GPU bound
- Top-Down performance analysis methodology in General Exploration analysis type for the 4th generation Intel® Core™ processors based on the Intel microarchitecture code name Haswell
- Bug fixes

Update 8:

- Bug fixes for upcoming 4th generation Intel® Core™ processors based on the Intel microarchitecture code name Haswell

Update 7:

- Support for the hardware event-based sampling analysis of Windows Store C# and JavaScript applications on Microsoft Windows 8* via the Attach to Process or Profile System modes

- Assembly grouping by RVA, basic blocks, and function ranges
- Support for applications generated by MinGW/Cygwin GCC*
- Event summary for hardware event-based sampling analysis results in the command line reports
- Highlighting performance issues based on filtered-in data
- Bug fixes

For more detailed information on the new capabilities, please visit our VTune Amplifier XE product page:

<http://software.intel.com/en-us/intel-vtune-amplifier-xe#pid-15465-910>

Search for the technical article titled: “What’s New? Update 7 – Intel® VTune™ Amplifier XE 2013”.

Update 6:

- Caller/Callee window enabling the detailed analysis of the parent and child functions for a particular focus function
- Optimized welcome page providing direct access to analysis configurations and recent analysis results
- Separate configuration tabs for Binary/Symbol Search and Source Search
- Context help for hardware events and performance metrics columns in the grid
- Overhead and Spin time metrics in the grid and Timeline pane
- Time scale configuration (Elapsed time, OS timestamp, and CPU timestamp options) for the Timeline pane
- Bug fixes

Update 5:

- Support of Hotspots, General Exploration and Bandwidth viewpoints for upcoming 4th generation Intel® Core™ processors based on the Intel microarchitecture code name Haswell

- Bug fixes

Update 4:

- Support for upcoming 4th generation Intel® Core™ processors, codenamed Haswell, including Lightweight Hotspots, General Exploration and Bandwidth analysis
- General Exploration viewpoint for Intel microarchitecture code named Ivy Bridge
- Frame analysis for OpenMP* parallel regions
- Attaching to Java* processes for hardware event-based sampling analysis types
- CPU utilization data in the Hotspots viewpoint for event-based sampling analysis results
- Usability improvements in the Timeline view, including sorting and separate band height set up
- Bug fixes

Update 3:

- Loop Mode switch in the filter bar to view a hierarchy of the loops in application call tree
- Support for multiple domains for `__itt_frame_*` API to mark up program code into regions with any number of domains
- Bug fixes

Update 2:

- Search functionality in all grid panes, including Bottom-up, Top-down Tree and Source/Assembler views.
- Expanded Analysis Type tree for the current CPU
- Self-contained command line generation from GUI referencing low-level collection options
- Microsoft Windows* Server 2012 support

- Improved integration with Microsoft Windows* 8 operating system and Microsoft Visual Studio* 2012 IDE
- Bug fixes

Update 1:

- Bug fixes

Intel® VTune™ Amplifier XE 2013

- Support for new processors: 3rd Generation Intel® Core™ processors (formerly code named Ivy Bridge) and Intel® Xeon® processor E5-XXXX (formerly code named Sandy Bridge-EP), including General Exploration and Bandwidth analysis.
- Task analysis support for all collections via APIs.
- Java* support, including attach to process for user-mode sampling and tracing analyses and drill-down to source code.
- Hardware event-based sampling analysis with stacks.
- User-defined performance metrics.
- Improved call tree analysis, including statistical call count data collection and call tree command line reports.
- Usability improvements and bug fixes.

3 System Requirements

For an explanation of architecture names, see <http://software.intel.com/en-us/articles/intel-architecture-platform-terminology/>

Processor Requirements

- For general operations with user interface and all data collection except Hardware event-based sampling analysis
 - A PC based on an IA-32 or Intel® 64 architecture processor supporting the Intel® Streaming SIMD Extensions 2 (Intel® SSE2) instructions (Intel® Pentium® 4 processor or later, or compatible non-Intel processor).

- For the best experience, a multi-core or multi-processor system is recommended.
 - Because the VTune Amplifier XE requires specific knowledge of assembly-level instructions, its analysis may not operate correctly if a program contains non-Intel instructions. In this case, run the analysis with a target executable that contains only Intel® instructions. After you finish using the VTune Amplifier XE, you can use the assembler code or optimizing compiler options that provide the non-Intel instructions.
- For Hardware event-based sampling analysis (EBS)
 - EBS analysis makes use of the on-chip Performance Monitoring Unit (PMU) and requires a genuine Intel processor for collection. EBS analysis is supported on Intel® Pentium® M, Intel® Core™ microarchitecture and newer processors (for more precise details, see the list below).
 - EBS analysis is not supported on the Intel Pentium 4 processor family (Intel® NetBurst® MicroArchitecture) and non-Intel processors.
 - However, the results collected with EBS can be analyzed using any system meeting the less restrictive general operation requirements.
 - EBS analysis within a virtual machine is supported only in VMware Fusion* 5 virtual environment. EBS is not supported within other virtual machine environments.
- The list of supported processors is constantly being extended. Here is a partial list of processors where the EBS analysis is enabled:

Mobile Processors

Intel® Atom™ Processor

Intel® Core™ i7 Mobile Processor Extreme Edition (including 2nd, 3rd and 4th Generation Intel® Core™ processors)

Intel® Core™ i7, i5, i3 Mobile Processors (including 2nd, 3rd and 4th Generation Intel® Core™ processors)

Intel® Core™2 Extreme Mobile Processor

Intel® Core™2 Quad Mobile Processor

Intel® Core™2 Duo Mobile Processor

Intel® Pentium® Mobile Processor

Desktop Processors

Intel® Atom™ Processor

Intel® Core™ i7 Desktop Processor Extreme Edition (including 2nd, 3rd and 4th Generation Intel® Core™ processors)

Intel® Core™ i7, i5, i3 Desktop Processors (including 2nd, 3rd and 4th Generation Intel® Core™ processors)

Intel® Core™2 Quad Desktop Processor

Intel® Core™2 Extreme Desktop Processor

Intel® Core™2 Duo Desktop Processor

Server and Workstation Processors

Intel® Xeon® processors E7 family

Intel® Xeon® processor E5 family

Intel® Xeon® processors E3-1200 family

Intel® Xeon® processors 65xx/75xx series

Intel® Xeon® processors 36xx/56xx series

Intel® Xeon® processors 35xx/55xx series

Intel® Xeon® processors 34xx series

Quad-Core Intel® Xeon® processors 7xxx, 5xxx, and 3xxx series

Dual-Core Intel® Xeon® processors 7xxx, 5xxx, and 3xxx series

System Memory Requirements

- At least 2 GB of RAM

Disk Space Requirements

- 650 MB free disk space required for all product features and all architectures

Software Requirements

- Supported operational systems (embedded editions not supported):
 - Microsoft* Windows XP* SP2 and SP3
 - Microsoft* Windows XP Professional x64 Edition SP1 and SP2
 - Microsoft* Windows 7* and SP1
 - Microsoft* Windows Server 2008*
Microsoft Windows 8* (including Windows Store applications [1])
 - Microsoft* Windows Server 2012*
NOTE: In a future major release of this product, support for installation and use on Microsoft Windows XP will be removed.
- Supported compilers:
 - Intel® C/C++ Compiler 11 and higher
 - Intel® Fortran Compiler 11 and higher
 - Intel® Parallel Composer
 - Microsoft* Visual Studio* C/C++ Compiler
 - Cygwin (tested Cygwin 1.7.17 with GCC 4.5.3)
 - MinGW (tested MinGW with GCC 4.6.2)
- Supported Microsoft Visual Studio versions:
 - Microsoft* Visual Studio* 2008
 - Microsoft* Visual Studio* 2010 and SP1
 - Microsoft* Visual Studio* 2012
 - Microsoft* Visual Studio* 2013 RC
 - **NOTE: Support for Microsoft Visual Studio 2008* is deprecated** - In a future major release of the Intel VTune Amplifier XE, support for use with Microsoft

Visual Studio 2008* will be removed. Intel recommends that customers migrate to Microsoft Visual Studio 2012* at their earliest convenience.

- Application coding requirements
 - Supported programming languages:
 - Fortran
 - C
 - C++
 - C# (.NET* versions 3.5 and below are fully supported, .NET versions 4.0 and higher are supported with limitations, see the note below) [2]
 - Java*
 - OpenCL*
 - Concurrency and Locks and Waits analysis types interpret the use of constructs from the following threading methodologies:
 - Intel® Threading Building Blocks
 - Win32* Threads on Windows*
 - OpenMP* [3]
 - Intel's C/C++ Parallel Language Extensions
- Supported Java* environments:
 - Oracle* JVM 6 and 7 – Hotspots and Hardware event-based analysis types
 - IBM* J9 – Hardware event-based analysis types only
- Supported OpenCL* environments:
 - Intel® SDK for OpenCL Applications 2013 Beta for Windows* OSs

To view PDF documents, use a PDF reader, such as Adobe Reader*.

Notes:

1. VTune Amplifier XE supports Basic Hotspots analysis and hardware event-based sampling analysis of Windows Store C# and JavaScript applications on Microsoft Windows 8* via the Attach to Process or Profile System modes. Launch Application mode is not supported. Concurrency and Locks and Waits analysis types are not supported.

2. VTune Amplifier XE has limited support for .NET 4.0 and higher: The Task Parallel Library classes and algorithms in the System.Threading.Tasks namespace are not supported.

3. VTune Amplifier XE supports analysis of applications built with Intel® Fortran Compiler Professional Edition version 11.0 or higher, Intel® C++ Compiler Professional Edition version 11.0 or higher, GNU* C/C++ Compiler 4.2 or higher, or Microsoft* Visual Studio* C/C++ Compiler.

4 Technical Support

If you did not register your product during installation, please do so at the [Intel® Software Development Products Registration Center](#). Registration entitles you to free technical support, product updates and upgrades for the duration of the support term.

For information about how to find Technical Support, Product Updates, User Forums, FAQs, tips and tricks, and other support information, please visit <http://www.intel.com/software/products/support/>

Note: If your distributor provides technical support for this product, please contact them for support rather than Intel.

5 Installation Notes

If you are installing the product for the first time, please be sure to have the product serial number available so you can type it in during installation. A valid license is required for installation and use.

The installation of the VTune Amplifier XE removes any earlier installed version of the VTune Amplifier XE.

The product is a self-extracting executable archive with one IA-32 package you can install on either a 32-bit or 64-bit system.

To begin installation, double click the `VTune_Amplifier_XE_2013_<update#>_setup.exe` file as a user with *Administrative* privileges. This installs the full package (includes GUI front-end for using the VTune Amplifier XE as well as Microsoft* Visual Studio integration). Activation is required.

Activation

It is required to activate the product to finish installation. There are several methods for product activation:

- Activation using serial number. Internet connection is required;
- Remote activation using serial number. Used when your computer is not connected to the internet. You can use another computer with internet access;
- Activation using license file;
- Activation using license server.

You can also evaluate the product for 31 days.

Installing Collectors on Remote Systems

You can install the command line data collection features of the product on remote systems to reduce overhead and simply collect data remotely. Data collection on a remote system does not require a license; however, viewing of the data cannot be done on the remote system unless a license is present.

The results of any data collection that is run on the remote system must then be copied to the system where the regular install was done for analysis, viewing, and reporting.

To do this:

1. Unpack the product web image manually using the command:
`VTune_Amplifier_XE_2013_<update#>_setup.exe --extract-only --silent --extract-folder C:\temp\VTune_Amplifier_XE_2013_unpacked`

Use any convenient path for the `--extract-folder` option.

In case the `--extract-folder` option is omitted, the default location for the extracted image would be:

"C:\Program Files (x86)

\Intel\Download\VTune_Amplifier_XE_2013_setup" for 64-bit and

"C:\Program Files

\Intel\Download\VTune_Amplifier_XE_2013_setup" for 32-bit OS.

2. Copy the folder containing the installation files for the collectors and command line tools to the remote machine. With the example shown above, the location of this folder would be `C:\temp\VTune_Amplifier_XE_2013_unpacked\Installs\ps_he_cli.*`
3. Run the `Amplifier_XE.msi` with *Administrative* privileges and follow the instructions. No activation will be required.
4. On a 64-bit remote machine, from the VTune Amplifier XE installation location, run and install `msvcrt_x86.msi` and `msvcrt_x64.msi` (requires *Administrative* privileges).
5. On a 32-bit remote machine, from the VTune Amplifier XE installation location, run and install `msvcrt_x86.msi` (requires *Administrative* privileges).

Default Installation Folders

The default top-level installation folder for this product is:

```
C:\Program Files\Intel\VTune Amplifier XE 2013\
```

If you are installing on a system with a non-English language version of Windows, the name of the Program Files folder may be different. On Intel® 64 architecture systems, the folder name is Program Files (X86) or the equivalent.

This product installs into an arrangement of folders shown in the list below. Not all folders will be present in a given installation.

- C:\Program Files\Intel\VTune Amplifier XE 2013\
 - o bin32
 - o bin64*
 - o config
 - o documentation
 - o include
 - o lib32
 - o lib64*
 - o message
 - o resource
 - o samples
 - o sepdk
 - o sdk

(*) bin64 and lib64 are available for Intel® 64 architecture install package

Changing, Updating and Removing the Product

If you want to add or remove components from an installation, open the Control Panel and select the Add or Remove Programs applet, select **Intel® VTune™ Amplifier XE 2013** and click **Change**. To remove the product, select **Remove** instead of **Change**.

When installing an updated version of the product, you do not need to remove the older version. Installation program will remove the old version automatically.

Note: If the SEP driver uninstallation failed during the normal uninstall process, open a Command Prompt window and execute the following commands with Administrative privileges to manually remove the SEP driver from the system:

```
cd %windir%\system32\drivers
dir sep*.sys
net stop sep3_10      # unload SEP3 driver from kernel
del sep3_10.sys      # delete SEP3 driver from filesystem
net stop vtss        # unload VTSS driver from kernel
```

```
del vtss.sys          # delete VTSS driver from filesystem
net stop sepdal      # unload PAX driver from kernel
del sepdal.sys       # delete PAX driver from filesystem
```

Intel® Software Manager

Intel® Software Manager is a utility that allows users to:

- Download and install updates for your Intel® Software Development Products.
- Manage subscription status of installed software.
- Activate serial numbers.
- Find out about the latest news for Intel Software Development Products.
- Intel® Software Manager requires an Internet connection to connect to a remote server for information and updates.

Intel Software Manager installs with Intel Software Development Products on Windows*, Linux*, and OS X* operating systems.

To obtain more information about Intel Software Manager, please refer to the <https://registrationcenter-ssl.intel.com/Docs/ism.htm> web-page.

Known Installation and Configuration Issues

- If you encounter problems using F1 Help for the VTune Amplifier XE windows and dialog boxes on Microsoft Visual Studio* 2008 systems: Choose **Tools > Options > Help > Online > Try local first, then online.**
- When installing the VTune Amplifier XE for the first time on a Microsoft Visual Studio* 2010 system, you may be asked to initialize the Local Store for documentation. Follow **Help Library Manager** installation wizard instructions to register and install the VTune Amplifier XE Help documentation. You do not need to re-register the VTune Amplifier XE Help documentation when you install future VTune Amplifier XE updates. For more information, see <http://msdn.microsoft.com/en-us/library/dd264831.aspx>.
If you encounter problems viewing the VTune Amplifier XE (local) help: Choose **Help > Manage Help Settings > Settings**, and check **I want to use local help.**
- By default, Microsoft Visual Studio* 2012 sets the **Launch in Help Browser** option to display documentation for integrated products. To view the VTune Amplifier XE (local) help documentation: Choose **Help > > Intel VTune Amplifier XE 2013 > Intel VTune Amplifier XE 2013 Help** (or use context-sensitive help). If you still encounter problems viewing the help, Choose **Help > Set Help Preferences > Launch in Help Viewer.**

6 Issues and Limitations

Known Issues and Limitations

- **Running time is attributed to the next instruction (200108041)**
 - To collect the data about time-consuming running regions of the target, the VTune™ Amplifier XE interrupts executing target threads and attributes the time to the context IP address.
 - Due to the collection mechanism, the captured IP address points to an instruction AFTER the one that is actually consuming most of the time. This leads to the running time being attributed to the next instruction (or, rarely to one of the subsequent instructions) in the Assembly view. In rare cases, this can also lead to wrong attribution of running time in the source - the time may be erroneously attributed to the source line AFTER the actual hot line.
 - In case the inline mode is ON and the program has small functions inlined at the hotspots, this can cause the running time to be attributed to a wrong function since the next instruction can belong to a different function in tightly inlined code.
- **Incorrect timing results when running on a 32-bit virtual machine (200137061)**
 - VTune Amplifier XE may fail to collect correct timing data when running on a virtual machine with problematic virtualization of time stamp counters. In this case the VTune Amplifier XE throws a warning message:
 - “Warning: Cannot load data file '<path_to_a_trace_file>.trace' (syncAcquiredHandler: timestamps aren't ascended!)”
- **An application that allocates massive chunks of memory may fail to work under VTune Amplifier XE (200083850)**
 - If a 32-bit application allocates massive chunks of memory (close to 2 GB) in the heap, it may fail to launch under the VTune Amplifier XE while running fine on its own. This happens because the VTune Amplifier XE requires additional memory when profiling an application. The workaround could be in using larger address space (for example, converting the project to 64-bit).
- **Hardware event-based analysis may crash certain Intel® Core™ i7 processor-based systems when deep sleep states are enabled (200149603)**
 - On some Intel® Core™ i7 processor-based (code named Nehalem) systems with C-states enabled, sampling may cause system hanging due to a known hardware issue (see errata AAJ134 in <http://download.intel.com/design/processor/specupdt/320836.pdf>). To avoid this, disable the “Cn(ACPI Cn) report to OS” BIOS option before sampling with the VTune Amplifier XE analyzer on Intel Core i7 processor-based systems.
- **Link to instruction guide: instruction set reference document is not positioned on description of proper instruction. (200091200)**

- The reference information for assembly instructions can be opened in any PDF viewer, but only Adobe Acrobat Reader* supports positioning the instruction reference document on the required page. To ensure correct functionality of this feature, you are recommended to install the latest available version of Adobe Acrobat Reader.
- **Uninstalling limitation: pin.exe stays running after detaching.** (200092295)
 - The VTune™ Amplifier XE cannot be uninstalled after attaching to the target to be profiled until running the target is over. The cause is that pin.exe keeps working after detaching from the target and exits only after the profiled application/process execution finishes.
- **VTune™ Amplifier XE does not support profiling an application launched under debugger** (200092508)
 - The Hotspot, Concurrency or Lock and Waits analysis types provide incorrect results when analyzing an application launched under a debugger. VTune Amplifier XE does not detect whether a debugger is attached to a profiled application. Make sure that no debugging tools are attached to the application that is profiled with the VTune Amplifier XE.
- **Second attach to the same application should print an error and exit immediately.** (200092650)
 - The VTune™ Amplifier XE allows running the analysis while the previous one is in progress but does not store any data for the second analysis run.
- **Truncated .NET* module names may be displayed in results view.** (200199458)
 - When viewing results collected for a .NET application, you may observe truncated .NET module names. Please make sure a system was rebooted after installing the .NET application and before profiling with the VTune Amplifier XE.
- **Intel® Compiler only produces first level of inlines. The nested inlines are not emitted into the debug information.** (200164310)
 - Intel® Compiler currently generates debug information only for the first level of inline functions. So, you cannot see performance data attributed to functions inlined to other inline functions. Instead, this performance data are attributed to corresponding functions inlined to regular (not inline) functions. This may also cause wrong source line attribution of performance data in the source view.
- **Timeline pane displays incorrect concurrency and thread states for a paused region in the Concurrency and Locks and Waits analyses.** (200204715)
 - Concurrency and thread state data may be incorrect in the Timeline pane for a region corresponding to the time when data collection was paused. Ignore the timeline data in a paused region during result analysis.
- **Java source line may be shown incorrectly for Oracle JDK 6u25 x64** (200167001)
 - Drilling down to Java source code from VTune Amplifier XE results may show incorrect source line. The issue occurs with Java applications built with Oracle

JDK 6u25 x64. This is the JDK problem, refer to issues JDK-7051767 and JDK-7047624 in Oracle bug database.

- **Result finalization may be slow if results are located in a remote network directory (200169322)**
 - The problem is caused by slow network access. To improve performance use local directory for result storage.
- **VTune™ Amplifier XE does not resolve symbols correctly on Windows XP SP1 operating system (200216358)**
 - When VTune™ Amplifier XE is ran on Windows XP Service Pack 1 operating system, a problem may be observed that symbols are not resolved correctly but instead are shown as "[foo.dll]" names. This happens because VTune™ Amplifier XE uses Microsoft DIA library version which requires Service Pack 2 to be installed. Please install the service pack to resolve the issue.
- **Information collected via ITT API is not available when attaching to a process. (200172007)**
 - When collecting statistics data using ITT API injected into a source code, like Frame Analysis or JIT-profiling, attaching to a process will not bring expected results. Use the VTune Amplifier XE analysis to start an application instead of attaching to a process.
- **Limited support of machines with more than 32 logical CPUs (200172671)**
 - User mode sampling and tracing based analysis types (Hotspots, Concurrency, Locks and Waits) do not support profiling on Windows based system with more than 32 logical CPUs. Collection will run but data opening will fail with assert.
- **Only one stack frame is shown in Java code if IBM* J9* JVM is used (200227950)**
 - Currently Java stack unwinding is not supported for IBM* J9* JVM.
- **VTune Amplifier XE can show [unknown stack frame(s)] as a hotspot in EBS analyses in Windows* 2008 R2 (200173627)**
 - Workaround is to start VTune Amplifier XE under the explicit "Run as administrator" option, even if current user has administrator credentials.
- **Attachment as Administrator to a process that launched by the 'System' user fails (200259643)**
 - You may use a utility from <http://technet.microsoft.com/en-us/sysinternals/bb897553> to profile a system service (e.g. w3wp.exe-based code) from the command line using amplxe-cl.exe that is located in <product_install_dir>/bin32. Do the following:
 - 1. Configure the w3wp service to run with the permissions you use to log in: Open IIS Manager, right-click an application pool you are using and set "Process model:Identity" to the account under which w3wp needs to be run.
 - 2. Run the w3wp service and make sure you run it with proper credentials and remember its PID.
 - 3. Start data collection:

- psexec -i 0 /path/to/amplxe-cl.exe -c=hotspots -r /path/for/your/data_dir --target-pid=PID
 - 4. Run your workload.
 - 5. Stop data collection:
 - psexec -i 0 /path/to/amplxe-cl.exe -command detach -r /path/for/your/data_dir
 - 6. Open /path/for/your/data_dir in GUI:
 - <product_install_dir>/bin32/amplxe-gui /path/to/your/data_dir
- **Do not use -ipo option since it causes the inline debug information to switch off.** (200260765)
 - If using the Intel® compiler to get performance data on inline functions, use the additional option “/debug:inline-debug-info”, but avoid using the /Qipo option. Currently this option disables generating the inline debug information in the compiler. Note that the Intel compiler integrated into the Microsoft Visual Studio* IDE uses the /Qipo by default in the Release configuration.
 - **Intel® Compiler 13.0 and earlier doesn't support function split ranges in debug info which may lead to wrong performance data attribution in case function ranges are overlapped (e.g. performance data attributed to one function, but should have been split by two).** (200260768)
 - In some cases the Intel® Compiler 13.0 and earlier generates imprecise debug information about ranges of inline functions. This may lead to wrong performance data attribution when the Inline mode is turned on, for example: instead of two functions performance data is attributed just to one of them.
 - **Call stack can't be unwound via no return functions** (200263851)
 - If analyzed application contains functions without ret instruction, e.g. calling exit(), unwinding call stack to its caller and higher may fail (no stack frames shown).
 - **Attaching the VTune Amplifier XE to a process may take some time** (200276420)
 - Your target application may complete before the data collection starts, so the VTune Amplifier XE may report an error. Increase the duration of your test application if necessary.
 - **Command "status" is not supported for hardware event-based analysis types** (200281661)
 - Command line option "\$ amplxe-cl -command status" is currently supported only for user mode sampling and tracing based analysis types, but not for EBS analysis types.
 - **Limited event description for Intel® Xeon® processor E5-XXXX and the 2nd Generation Intel® Core™ processor family desktop processors.** (200285238)
 - Developers can find more details on events by checking the Intel® 64 and IA-32 Architectures Software Developer's Manual <http://download.intel.com/products/processor/manual/325462.pdf>, Tables 19-3, 19-4 and 19-5.

- **Hardware event-based analysis may cause unpredictable system behavior on processors based on Intel® microarchitecture code named Sandy Bridge (200285401)**
 - On processors based on Intel microarchitecture code named Sandy Bridge, hardware event-based sampling may cause unpredictable system behavior due to a known hardware issue (see erratum BK105 in <http://www.intel.com/content/dam/www/public/us/en/documents/specification-updates/2nd-gen-core-family-mobile-specification-update.pdf>). To avoid this, you are not recommended to run General Exploration, Client Analysis, Cycles and Uops, Loop Analysis or Custom Hardware event-based analysis with precise events on these systems unless a BIOS workaround for the erratum is provided.
- **Installing VTSS++ driver on the system where SEP and VTSS++ drivers have been already registered may fail (200292274)**
 - Running the following command may cause an error:
 - >amplxe-sepreg.exe -i
 - Installing and starting sepdrv3_8...OK
 - Installing and starting sepdal...OK
 - Installing and starting VTSS++ driver...FAILED
 - This can happen due to insufficiency of available memory. Rebooting the system helps to get resources cleaned so registration after reboot should work.
- **Hardware event-based analysis doesn't work if more than 128 events are gathered simultaneously (200293868)**
 - Decrease number of PMU events in analysis settings to resolve it.
- **Results should be closed before comparing them (200236090)**
 - VTune Amplifier XE doesn't support opening same result twice. Due to that limitation it is not possible to compare (via "Compare" button) results if one of them is already opened. You should close results first then compare them.
- **Limited support of Windows Store* applications (200299329)**
 - VTune Amplifier XE supports attaching to Windows Store* applications, but not launching them. Only hardware event-based analysis types are supported.
- **Microsoft* Visual Studio* 2012 help may be displayed incorrectly (200300692)**
 - On Microsoft* Windows Server 2012* systems, if you have problems viewing Microsoft* Visual Studio* 2012 help, check the settings for Internet Explorer in Tools > Internet Options > Security. To allow correct display of help, in the Internet zone enable MIME Sniffing and Active scripting.
- **VTune Amplifier XE analysis may fail on machine with Verdasys Digital Guardian* software installed. (200237470)**
 - User mode sampling and tracing based analysis types (Hotspots, Concurrency, Locks and Waits) run from GUI may fail if Verdasys Digital Guardian* software is installed on the machine. However it is still possible to run collection from command line.

- Alternatively EBS collection with stacks can be used, either from GUI or command line.
- **Analyzed application may crash during analysis if "Symantec Endpoint Protection Application and Device Control" software is installed (200237601)**
 - The issue may occur with user mode sampling and tracing based analysis types (Hotspots, Concurrency, and Locks and Waits). Ways to overcome the problem:
 - 1. If user mode sampling and tracing based analysis is needed exclude the analyzed application from the list of monitored applications of "Symantec Endpoint Protection Application and Device Control" software.
 - 2. Use "Lightweight hotspots" with "Collect stacks" option turned on instead.
- **ITT API task or frame is not shown in results if its end occurs when collector is inactive (200331811)**
 - When ITT task or frame end notification occurs after collection was paused, or detach or stop command issued, the frame or task is not displayed in the result.
- **Documentation can't be opened in Microsoft Internet Explorer* 10 on Windows Server* 2012 (200340007)**
 - To correct the problem modify security settings in Microsoft Internet Explorer* 10. From Tools > Internet Options > Security, add "about:internet" to the list of trusted sites.
- **Child process analysis doesn't work for EBS analysis types if process is run from script using "start" command (200342928)**
 - If a process is started from a batch file by "start" command, it doesn't have original command interpreter as a parent process. So the new process can't be identified as a child and not profiled. This is true for all Hardware event-based analyses. Possible workarounds:
 - - Use user mode sampling and tracing based analysis types instead
 - - Use "call" command in a batch file instead of "start"
 - - Use "attach to process" collection mode to connect directly to the process of interest
- **Collection of some GPU analysis metrics should be enabled in BIOS for 3rd Generation Intel® Core™ processors (200342983)**
 - Some systems disable collection of extended metrics such as L3 misses, memory accesses, sampler busyness, SLM accesses, etc. in the BIOS. On some systems, but not all, they can be enabled by changing a bios option. The presence or absence of the option and its name are BIOS vendor specific. Look for something like an "Intel(R) Graphics Performance Analyzers" option in your BIOS and set it to "Enabled ". Note that this option is BIOS vendor specific, may not always be present and may be named differently. Check the BIOS options on your system for details.
- **ITT domain and string handle creation API cannot be used from static code for EBS collections (200248521)**
 - ITT API cannot be used from the static code or main code of a dynamic library.

- You may workaround this limitation as follows:
 - 1. Declare corresponding handlers as static within a function that needs ITT API.
 - VTune Amplifier will merge all string handles and domains by their name passed to the corresponding APIs.
 - 2. Declare variables globally in the C file to initialize them from an init function of the given dynamic library, if it exists.
- **Results may contain process name cut on the 14th character** (200401361)
 - VTune may cut long process name on the 14th character in results collected with EBS analysis types with stacks. E.g. the result should contain "find_hotspots.exe", but it contains only "find_hotspots.". This is operating system limitation.
- **Attaching to processes with credentials different from those used by VTune Amplifier is not supported on Windows XP operating system for Hotspots, Concurrency and Locks&Waits analysis types** (200403973)
 - On Windows XP operating system, attaching to a target process for Hotspots, Concurrency and Locks&Waits analysis types is possible only if the process and VTune Amplifier run with the credentials of the same user account.
- **Reporting disassembly for multiple objects in command line is not allowed** (200252973)
 - VTune amplifier does not support reporting disassembly for multiple objects. As a result if a user defines in CLI filter by function that has 2 or more function instances CLI will report an error.

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Changes to standard library modules:

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A brief summary of changes made to Python 2.5.2 source:

- On Windows*, the code of import, zipimport, and execfile was modified to handle directories containing Unicode characters.

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/* zlib.h -- interface of the 'zlib' general purpose compression library
version 1.2.3, July 18th, 2005

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*/

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