



# Intel® Inspector 2019 Update 1

---

*Release Notes*

4 February 2019

## Customer Support

For technical support, including answers to questions not addressed in this product, visit the technical support forum, FAQs, and other support information at:

- <https://software.intel.com/en-us/inspector/support/get-help>
- <http://www.intel.com/software/products/support/>
- <https://software.intel.com/en-us/inspector>

Please remember to register your product at <https://registrationcenter.intel.com/> by providing your email address. Registration entitles you to free technical support, product updates and upgrades for the duration of the support term. It also helps Intel recognize you as a valued customer in the support forum.

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

---

# Contents

---

<a href="#">1</a>	<a href="#">Introduction</a>	<a href="#">2</a>
<a href="#">2</a>	<a href="#">What's New</a>	<a href="#">3</a>
<a href="#">3</a>	<a href="#">System Requirements</a>	<a href="#">3</a>
<a href="#">4</a>	<a href="#">Where to Find the Release</a>	<a href="#">5</a>
<a href="#">5</a>	<a href="#">Installation Notes</a>	<a href="#">5</a>
<a href="#">6</a>	<a href="#">Known Issues</a>	<a href="#">8</a>
<a href="#">7</a>	<a href="#">Attributions</a>	<a href="#">14</a>
<a href="#">8</a>	<a href="#">Legal Information</a>	<a href="#">14</a>

## 1 Introduction

Intel® Inspector 2019 Update 1 helps developers identify and resolve memory and threading correctness issues in their C, C++ and Fortran applications on Windows\* and Linux\*. Additionally, on Windows platforms, the tool allows the analysis of the unmanaged portion of mixed managed and unmanaged programs and identifies threading correctness issues in managed .NET C# applications.

Intel Inspector is a dynamic error checking tool for developing multithreaded applications on Windows\* or Linux\* operating systems. Intel Inspector maximizes code quality and reliability by quickly detecting memory, threading, and source code security errors during the development cycle. You can also use the Intel Inspector to visualize and manage Static Analysis results created by Intel compilers in various suite products. Intel Inspector is an easy, comprehensive solution that delivers rapid results by isolating memory and multithreading errors.

Intel Inspector has a standalone graphical user interface (GUI) as well as a command line interface (CLI). In addition, on Microsoft Windows systems, the Intel Inspector integrates into the Microsoft Visual Studio\* 2013 and later versions.

This document provides system requirements, issues and limitations, and legal information.

To learn more about this product, see:

- New features listed in the [What's New](#) section below.
- The help documents at:
  - Linux\*: <https://software.intel.com/en-us/inspector-user-guide-linux>
  - Windows\*: <https://software.intel.com/en-us/inspector-user-guide-windows>

## 2 What's New

### Intel® Inspector 2019 Update 1

- Assorted bug fixes
- New OS support
  - Red Hat\* Enterprise Linux\* 6.10
  - Ubuntu\* 18.10

### Intel® Inspector 2019

- Introduces Intel® Inspector – Persistence Inspector feature.
- Inspector debugger add-on now supports Microsoft\* Visual Studio\* 2017
- New OS support
  - Fedora\* 28
  - Red Hat\* Enterprise Linux\* 7.5
  - Microsoft\* Windows\* 10 build 17134
  - Ubuntu\* 18.04
  - SUSE\* Linux Enterprise Server\* 12 SP3
  - SUSE\* Linux Enterprise Server\* 15

## 3 System Requirements

### Supported Architectures and Terminology

Intel® Inspector supports the following architectures:

- **IA-32 Architecture** refers to systems based on 32-bit processors generally compatible with the Intel Pentium® processors (for example, Intel® Pentium® 4 processor or Intel® Xeon® processor), or processors from other manufacturers supporting the same instruction set, running a 32-bit operating system.
- **Intel® 64 Architecture** refers to systems based on IA-32 architecture processors which have 64-bit architectural extensions, for example, Intel® Core™ architecture processors, running a 64-bit operating system such as Microsoft Windows 8\* x64 or a Linux\* "x86\_64" variant. If the system is running a 32-bit operating system, then IA-32 architecture applies instead.

### Hardware Requirements

- At least 4 GB of RAM
- 350 MB free disk space required for all product features and all architectures.

- A system 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 or Intel® Xeon® Scalable Processors)
  - Since the Intel® Inspector requires specific knowledge of assembly-level instructions, its analysis may not operate correctly if code contains non-Intel instructions. In this case, run the analysis with a target executable that contains only Intel® instructions. After you finish using the Intel® Inspector, you can use the assembler or optimizing compiler options that provide the non-Intel instructions.
  - For the best experience, a multi-core or multi-processor system is recommended

## Software Requirements

- Supported operating systems (embedded editions are not supported):
  - Microsoft Windows 8.1\* operating system
  - Microsoft Windows Server\* 2012, 2012 R2 and 2016
  - Microsoft Windows 10\* operating system (up to build 17134)
  - Red Hat\* Enterprise Linux\* 6 and 7 (including 7.5 and 6.10)
  - CentOS\* versions equivalent to Red Hat Enterprise Linux versions listed above
  - Fedora\* 27 and 28 (`pangox-compat` package should be installed)
  - SUSE\* Linux Enterprise Server\* 12 and 15
  - Debian\* 8 and 9
  - Ubuntu\* 16.04, 17.04, 17.10, 18.04, and 18.10
- Supported Microsoft\* Visual Studio\* versions:
  - Microsoft Visual Studio\* 2013
  - Microsoft Visual Studio\* 2015
  - Microsoft Visual Studio\* 2017
- Recommended compilers:
  - Intel® C/C++ Compiler 12.0 or higher
  - GNU\* C/C++ Compiler 3.4.6 and higher (Linux)
  - Intel® Fortran Compiler 12.0 or higher (Linux)
  - Intel® Visual Fortran Compiler 12.0 or higher (Windows)
- Application coding requirements
  - Supported programming languages:
    - Fortran
    - C
    - C++
  - Supported threading methodologies:
    - Intel® Threading Building Blocks (Intel® TBB)
    - Microsoft\* PPL\* (via Intel® TBB)
    - Intel® Cilk™ Plus
    - OpenMP\*
    - Win32\* Threads (Windows\*)
    - POSIX\* Threads (Linux\*)
    - Intel® C++ Compiler parallel language extensions
- Managed application coding requirements
  - Supported programming languages:

- C# (full support for .NET\* 2.0-3.5, partial support for .NET 4.0)

**NOTE:** Intel® Inspector has limited support for .NET 4.0:

- The Microsoft\* Task Parallel Library classes and algorithms in the `System.Threading.Tasks` namespace are not supported.
  - The `Barrier` synchronization class in the `System.Threading` namespace (new in .NET 4.0) is not supported.
- To view PDF documents, use a PDF reader, such as Adobe Reader\*.
  - To enable automatic product updates with the Intel® Software Update Manager, use Java\* version 1.6 or higher.

**NOTE:** You can use the Intel Inspector to analyze applications in debug and release modes. To learn more about options necessary to produce the most accurate, complete results, refer to the following related resources:

- Memory error analysis: <https://software.intel.com/en-us/articles/compiler-settings-for-memory-error-analysis-in-intel-inspector-xe/>
- Threading error analysis: <https://software.intel.com/en-us/articles/compiler-settings-for-threading-error-analysis-in-intel-inspector-xe/>

## Floating Licensing Service Requirements

Floating licenses for version 2019 Update 1 of the Intel® Software Development Tools require the Intel® Software License Manager version 2.7 (INTEL daemon 2.7/Imgrd 11.15.x) or higher for successful installation. To download the latest version of Intel® Software License Manager, please log in to the <https://registrationcenter.intel.com/> and choose the right OS and platform. Only users with floating license registrations have access to download the Intel® Software License Manager.

To get started with the Intel® Software License Manager, please refer to this tutorial:

<https://software.intel.com/en-us/articles/intel-software-license-manager-getting-started-tutorial>

## 4 Where to Find the Release

If you have a qualifying license for this product (i.e. an unexpired free license or a paid license with active support at the time of the build date for this product release), you can download the installer by logging in to <https://registrationcenter.intel.com/> and selecting the appropriate product.

You may need to create an account and/or register your product. For additional information please see:

- <https://software.intel.com/en-us/faq/registration>
- <https://software.intel.com/en-us/faq/downloading>

## 5 Installation Notes

Installation of Intel® Inspector removes any earlier minor versions of the product within the same major version that are installed on the system. Different major versions can co-exist with each other; however, on Windows\*, only one version can be integrated with a particular version of Microsoft\* Visual Studio\* at once.

On Windows\*, double-click on the compressed self-extracting executable file as a user with administrative privileges to begin installation. Select the full installation option to use default install settings and get the complete set of user interfaces (which includes a GUI front-end for using the product as well as Microsoft\* Visual Studio\* integration). To learn details of silent non-interactive installation on Windows\* systems, refer to [http://software.intel.com/en-us/windows\\_silent\\_installation\\_guide](http://software.intel.com/en-us/windows_silent_installation_guide).

On Linux\*, perform the following steps:

1. Uncompress the package:  
`gunzip <package-name>.tar.gz`
2. Extract the files:  
`tar xf <package-name>.tar`
3. Make sure you have read and write permissions for the `/tmp` directory and start the installation. To install on a local system enter the following:  
`cd <package-name>`  
`./install.sh`

**NOTE:** If you want to install the software for use by any user, you must do this as the root user. To install to a network-mounted drive or shared file system for multiple users, enter (as root user):

```
cd <package-name>
./install.sh --SHARED_INSTALL
```

4. Follow the prompts to complete the installation and activation of the software.

## Activation

A valid license is required for installation and use. If you are installing the product for the first time, use one of the following options for activating the license:

- Type in the product serial number (internet connection is required)
- Specify the location of a license file or license server
- Use an evaluation license for 31 days

## Intel® Software Manager

Intel® Software Manager installs with Intel Software Development Products on Windows\*, Linux\*, and Apple OS\* X operating systems. Intel Software Manager is a utility that lets you:

- 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.

For more information about the Intel Software Manager, see <https://registrationcenter-ssl.intel.com/Docs/ism.htm>.

## Default Installation Folders

The default top-level installation folders for this product are:

- **Windows:** `C:\Program Files\IntelSWTools\Inspector 2019`
  - If you are installing on a system with a non-English language version of Windows\* OS, the name of the `Program Files` folder may be different. On Intel® 64 systems, the directory name is `Program Files (x86)` or the equivalent.
- **Linux:** `/opt/intel/inspector_2019`

In both cases, there is also a generic soft link to the most recently installed version.

## Installing Collectors on Remote Systems

You can install the Intel Inspector collectors on a remote system after installing and activating the full product on one system. This is intended for use on systems where space or license checking is an issue. No product activation is required to install and run the collectors on a remote system, but the analysis results may not be viewed on the remote system. Result folders must be copied or made available through the network to the system where the full product was installed and activated, since the visualization of results and command-line reporting option require an activation check.

If you have the Windows installer package of Intel Inspector, do the following to install the Intel Inspector collectors on a remote Linux system:

1. If you do not know the extraction location for the original installation, run `<package_name>_setup.exe -x` to extract the installer files into the default location: `C:\Users\<username>\Downloads\Intel\Inspector_2019_setup`. If you need another location, use the command `<package_name>_setup.exe -x -f <location>`.
2. Locate and copy the folder `installs\insp\insp_cli_install` to the remote machine.
3. On a remote machine, run `installs\insp\insp_cli_install\Inspector.msi` and follow the installer instructions.
4. To install collectors silently, use:
 

```
msiexec.exe -i installs\insp\insp_cli_install\Inspector.msi -qn -log <log-file>
```

On a Linux system, perform the following steps:

1. Copy the `CLI_install` folder (found at the top level in the untarred product install package) to the remote machine.
2. Execute the `install.sh` script file (located inside the `CLI_install` folder). Activation is not required.

**IMPORTANT:** While no activation is required to install and run collectors on a remote machine, you are still bound by the terms and conditions of the End User License Agreement in the original install and included with the collectors remote install after you install the collectors.

## Changing, Updating and Removing the Product

On Windows\*, if you want to modify, repair, or remove the Intel® Inspector components, open the Control Panel and select the **Add or Remove Programs** applet (or **Programs and Features** in Microsoft Windows 7),

select **Intel Inspector 2019** and click **Change/Remove** (or **Uninstall/Change** in Microsoft Windows 7). Follow the installation instructions. You may need the original installation files to complete this process. If you do not have the extracted files, you can use the original installer executable to complete this process as well.

On Linux\*, to remove the product, execute the following commands as a root user or the same user who performed the installation:

1. `cd <installation_dir>`
2. `uninstall.sh`

## Known Installation and Configuration Issues

All of the following issues are Windows\* specific, as they deal with Microsoft\* Visual Studio\*.

- In very rare situations, the installer may hang during the phase *Configuring integration with Microsoft\* Visual Studio 20xx software...* phase. If the installer hangs for more than 20 minutes, locate process `devenv.exe` and shut down the process. Make sure that you do not have any running instances of Visual Studio software. Reboot the machine and then install the product again.
- By default, Visual Studio sets the **Launch in Browser** option to display documentation for integrated products. To view the Intel Inspector local help documentation: Choose **Help > Intel Inspector 2019 > Intel Inspector 2019 Help** or use context-sensitive help. If you still encounter problems viewing the help, choose **Help > Set Help Preferences > Launch in Help Viewer**.
- If you have problems viewing Microsoft Visual Studio help pages, 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**. Alternatively, from **Tools > Internet Options > Security** add "about:internet" to the list of trusted sites.

## Setting Up the Command Line

Before using Intel® Inspector on the command line, you will need to set up the environment:

- Windows: `<installation_dir>\inspxe-vars.bat`
- Linux: `source <installation_dir>/inspxe-vars.sh`

## 6 Known Issues

This section is quite long. To skip to operating system specific limitations, use these links:

- [Windows\\* Specific Limitations](#)
- [Linux\\* Specific Limitations](#)

## Common Limitations

### INTEL® INSPECTOR MAY NOT DETECT ALL ERRORS

Intel does not guarantee that the Intel Inspector will detect or report every memory and threading error in an application.

- Not all logic errors are detectable.
- Heuristics used to eliminate false positives may hide real issues.
- Highly correlated events are grouped into a single problem.



**INSPECTOR MAY INCORRECTLY REPORT DATA RACE PROBLEMS ON SIMPLE OPERATIONS**

On some hardware, the Intel® Inspector may report data race problems on simple operations (such as variable load or store operations) assumed to be atomic operations instead of explicit atomic instructions. In particular, the Intel Inspector reports false data race issues on C++ 11 `std::atomic` class operations compiled with the GNU `gcc`\* compiler. Intel® and Microsoft\* compilers use explicit atomic instructions; therefore, code generated with these compilers is not impacted.

**INSPECTOR MAY DISPLAY MODULE NAMES AND RELATIVE VIRTUAL ADDRESSES IF IT CANNOT LOCATE SYMBOLS**

If no symbols are found for a module in which a problem is detected, the Intel Inspector displays the call stack and observation source code of the first location where it can find symbols. If it cannot find any location in the call stack with symbols, it displays the module name and relative virtual address (RVA) for the location.

**APPLICATION CRASHES MAY CRASH OR HANG INTEL® INSPECTOR**

Applications that crash when run outside the Intel Inspector may crash or hang the Intel Inspector runtime analysis engine. For example, a corrupt return address on an application call stack crashes the runtime analysis engine. If a crash occurs, problems detected prior to that time can be viewed, but memory leaks will not be reported. Reviewing the problems that were reported may help, as it is likely that one of them caused the crash.

**INTEL® INSPECTOR CANNOT START AN ANALYSIS FROM THE GUI IF PREVENTED FROM OPENING A SOCKET**

Intel Inspector uses a socket to communicate between the graphical user interface and the runtime analysis engine. Preventing an application from opening a socket prevents an analysis of the application from being started by the graphical user interface. The command-line interface can be used to run an analysis in this case and the results can subsequently be viewed using the graphical interface.

**INSPECTOR MAY INCORRECTLY REPORT CALL STACKS FOLLOWING AN INTERRUPTION OF NORMAL CALL FLOW**

Intel Inspector may report an incorrect call stack following an interruption of normal call flow, such as when an exception is thrown and caught. While the Intel Inspector recognizes and attempts to correct result data when this situation occurs, it is possible for a threading or memory problem to be reported before the call stack is fully corrected.

**USING TOO MANY OPENMP\* THREADS MAY RESULT IN “INSUFFICIENT MEMORY” ERRORS**

If the Intel Inspector reports insufficient memory errors while analyzing OpenMP\* applications, try setting `OMP_NUM_THREADS` to limit the number of OpenMP threads. In most cases, `OMP_NUM_THREADS=2` is sufficient.

**LARGE APPLICATIONS MAY RESULT IN “INSUFFICIENT MEMORY” ERRORS**

If the Intel Inspector reports insufficient memory errors during analysis, try analyzing your application in sections by running several analyses and excluding a different set of modules for each run. Note that Intel Inspector does not detect or report issues in excluded modules.

**INSPECTOR ANALYZES ONLY THE FIRST INSTANCE OF A CHILD APPLICATION**

If a child application is selected for analysis, the Intel Inspector analyzes only the first instance of that application, even if multiple instances of that application occur.

### **INSPECTOR FILTERS DO NOT PERSIST ON RELOADING RESULTS**

When taking advantage of the Intel Inspector custom filter by source, be aware that this filter does not persist when reloading results.

### **MEMORY ERROR ANALYSIS: ON-DEMAND LEAK DETECTION DOES NOT REPORT MEMORY LEAKS UNTIL THE END OF THE BLOCK**

On-demand leak detection will not report memory leaks until the end of the basic block in which they occur, as there is still an internal reference in the program to that memory. If the baseline for leak detection is not reset, these leaks will be reported at the next request.

### **MEMORY ERROR ANALYSIS: INSPECTOR MAY REPORT FALSE POSITIVES ON APPLICATIONS WITH CUSTOM MEMORY ALLOCATORS**

Intel Inspector may report false positives when the analyzed application uses custom memory allocators. Use of `_itt_notify` to annotate your source code can reduce these false positives.

### **MEMORY ERROR ANALYSIS: INSPECTOR MAY BEHAVE UNPREDICTABLY IF C RUNTIME ALLOCATOR SEMANTICS ARE CHANGED**

If the semantics of standard C runtime allocators are changed, the behavior of the Intel Inspector is unknown and could lead to abnormal analysis termination. For instance, if the application is using non-standard versions of these allocators where the memory returned by the allocator is initialized when it would normally be uninitialized.

### **THREADING ERROR ANALYSIS: INTER-PROCESS DATA RACES AND DEADLOCKS ARE NOT DETECTED.**

Intel Inspector does not detect inter-process data races or deadlocks.

### **THREADING ERROR ANALYSIS: CUSTOM SYNCHRONIZATION PRIMITIVES MAY RESULT IN FALSE POSITIVES**

Intel Inspector may report false positives for analyzed applications using customized synchronization primitives. Use of `_itt_notify` to annotate your source code can reduce these false positives.

### **THREADING ERROR ANALYSIS: MACROS MUST BE SET BEFORE COMPILING INTEL® TBB APPLICATIONS**

To enable correct analysis of Intel® TBB applications, set the following required macros before compiling:

- If using Intel® TBB debug libraries:  
`TBB_USE_DEBUG` (which sets `TBB_USE_THREADING_TOOLS`)
- If using Intel® TBB release libraries:  
`TBB_USE_THREADING_TOOLS`

### **THREADING ERROR ANALYSIS: STATIC LINKING OF CERTAIN FILES MAY RESULT IN FALSE POSITIVES**

Intel Inspector may report false positives if you have the Microsoft C runtime statically linked in the Windows application. On Linux, this issue may happen with `libc` or `libpthread` statically linked to the application. To work around this issue, build your application with Microsoft C runtime (on Windows) or `libc` or `libpthread` (on Linux) dynamically linked in.

## Windows\* Specific Limitations

### ANTIVIRUS SOFTWARE CAN PREVENT INSPECTOR FROM INSTRUMENTING CODE

Virus checking can sometimes interfere with our ability to instrument code. The following error indicates the virus checker has modified `ntdll.dll`, which will cause our collections to fail. Currently there is no workaround, except turning off the virus checker.

*<"Collection failed" or some form of "Internal error">*

*<date and timestamp> Collection failed. The data cannot be displayed.*

*[Instrumentation Engine]: SYSCALL\_INSPECTOR: The NTDLL!NtTerminateThread function jumps out of NTDLL, at 0x7ffeb0fe00c4. It may be hooked by a PIN-incompatible software installed on the system  
Source\pin\base\_wlpc\_server\_windows.cpp: LEVEL\_BASE::StartServer: 2216: assertion failed: res == TRUE*

### .NET SUPPORT IS DEPRECATED

With the launch of the 2019 products, we will be listing the deprecation of .NET support in Intel Inspector. We currently only fully support .NET 3.5 which is an older technology that is seeing less and less use. We evaluated updating Inspector to support newer versions of .NET, but this is prohibitively expensive and not consistent with our current business goals.

We will continue to support .NET in Inspector until August of 2020, but will not be enhancing it. We plan to remove it from the product in August of 2020. This deprecation only applies to Intel Inspector; Intel® VTune™ Amplifier, our performance profiler, will continue to support it.

Intel Inspector supports the .NET 4.0 Runtime with the exception of the new Task Parallel Library classes.

### MANUAL INTEGRATION INTO MICROSOFT\* VISUAL STUDIO\* 2017 DOES NOT WORK

The product integrates into Microsoft Visual Studio 2017 only using official Inspector installation. Any other ways like `inspxe-vsreg.exe` tool or manual launching of the `.vsix` package will not work.

### USING MICROSOFT\* VISUAL STUDIO\* DEBUGGER "ATTACH" COMMAND ON APPLICATIONS UNDER ANALYSIS RESULTS IN DEBUGGING THE INSPECTOR ANALYSIS TOOL AND NOT THE APPLICATION BEING ANALYZED

To debug an application that is running an Intel Inspector analysis you must choose one of the Intel Inspector debug analysis options when starting the application. Using the Visual Studio Debugger "attach" command after starting an application under analysis does not have the same effect and will result in debugging the Inspector analysis tool and not the application. When starting a debug analysis session in the documented manner, the Intel Inspector uses a probe in the Visual Studio process to intercept and modify the Visual Studio Debugger behavior such that it controls execution and displays information about the target application rather than the analysis tool.

### INSPECT HAS LIMITED SUPPORT FOR WINDOWS\* FIBERS

Intel Inspector only has limited support for Windows\* fibers.

### INSPECTOR DOES NOT SUPPORT BINARIES BUILT WITH /DEBUG:FASTLINK

Inspector doesn't support binaries built with `/DEBUG:FASTLINK` option, which is default in Microsoft Visual Studio\* 2015 Update 1.

### **WINDOWS\* 8 STORE APPS AND WINRT APIS ARE NOT SUPPORTED**

Intel Inspector does not support development of new Windows 8\* Store Apps and use of WinRT APIs.

### **MEMORY ERROR ANALYSIS: CERTAIN COMPILATION OPTIONS CAN HIDE ERRORS FROM INSPECTOR ANALYSIS**

If you turn on Analyze stack accesses for a memory analysis, then make sure the application being analyzed is not compiled with the default Microsoft Visual C++\* setting `/RTC1` or with `/RTCs`. These options cause a basic runtime check for stacks which uses a fill technique to detect uninitialized accesses that hides errors from the Intel Inspector's memory analysis.

### **THREADING ERROR ANALYSIS: APPLICATIONS USING MICROSOFT\* CONCURRENCY RUNTIME FRAMEWORK MAY RESULT IN FALSE POSITIVES**

Intel Inspector may report false positives when analyzing applications that use the Microsoft\* Concurrency Runtime framework (Parallel Patterns Library, Asynchronous Agents Library, etc.).

### **THREADING ERROR ANALYSIS: INSPECTOR DOES NOT DETECT DEADLOCKS OR DATA RACES IN SYSTEM MODULES**

Intel Inspector does not detect data races or deadlocks in system modules (say, modules residing in `Windows\System32` directory). For example, DX9 libraries and memory accessed by DX libraries installed in Windows system directory are not analyzed. To enable detection of the issues, move the modules to a non-system directory (say to the Windows\* `Program Files` directory).

### **THREADING ERROR ANALYSIS: INSPECTOR MAY HANG IF MULTIPLE VERSIONS OF MICROSOFT\* .NET ARE USED**

Using multiple versions of the Microsoft .NET\* framework in the same application may cause the Intel Inspector to hang.

### **THREADING ERROR ANALYSIS: INSPECTOR MAY NOT CAPTURE MAIN THREAD CREATION SITE**

Intel Inspector does not capture the main thread creation site if...

- the binary is built without debug symbol information.
- the .pdb symbol file is not in the location specified within the .exe or .dll executable file or in the location containing the .exe or .dll executable file.

## **Linux\* Specific Limitations**

### **SECURITY-ENHANCED LINUX\* (SELINUX) SETTINGS ARE NOT SUPPORTED**

Intel Inspector does not currently support Security-enhanced Linux\* settings (SELinux); it supports only Permissive mode.

To work around this limitation, either disable SELinux by

- setting the line "SELINUX=disabled" in your `/etc/sysconfig/selinux` file
- adding "selinux=0" kernel argument in `lilo.conf` or `grub.conf` files

or make a SELinux mode adjustment by

- setting the line "SELINUX=permissive" in your `/etc/sysconfig/selinux` file
- ask your system administrator to make a SELinux mode adjustment

You may need to reboot your system after changing the system parameters. More information about SELinux can be found at <http://www.nsa.gov/research/selinux/index.shtml> .

#### **INSPECTOR DEBUGGER MAY NOT LAUNCH FROM CERTAIN TERMINALS**

Intel Inspector cannot launch a debugger when the terminal type `konsole` is used on KDE\* versions older than 4.6. Use a terminal such as `xterm` on older KDE versions when using the analysis with debug feature.

#### **MULTIPLE DEBUGGER SESSIONS MAY OPEN WHEN ANALYZING MULTI-THREADED APPLICATIONS**

When running a multi-threaded application, use of **Enable debugger when problem detected** (`-appdebug=on-error`) can result in multiple debugger sessions being opened. Only the first occurrence will be connected and able to debug the application under analysis. The workaround is to use **Select analysis start location with debugger** (`-appdebug=on-start`) so that only one debug session will be started, then turn on analysis by entering the extended debugger command `monitor begin-analysis` and then continue to resume execution until it encounters a problem.

#### **INSPECTOR ANALYSIS MAY FAIL IF ATTEMPTING TO STORE RESULTS IN A PARALLEL VIRTUAL FILE SYSTEM 2**

If you try to store results on a Parallel Virtual File System 2 (pvfs2), Intel Inspector analysis fails with the following error: *"Error: Failed to create a database. Cannot continue."*

To work around this issue, specify a result directory location that is not on a pvfs2 file system.

#### **COMMANDS FOR INTERACTIVE DEBUGGING WITH GDB ON FORTRAN APPLICATIONS MAY BE SLOW (INSP-217)**

When using interactive debugging with `gdb` on Fortran programs on Linux, the 'next' and 'step' commands in the debugger can take a very long time to execute. To work around this, use the Intel® debugger with Fortran programs. The launched debugger can be changed in the GUI from the **File->Options** menu. It can be set for the CLI using the `INSPXE_DEBUGGER` environment variable or the `-debug-using` command line option.

#### **ANALYSIS MAY FAIL IF PTRACE IS DISABLED**

Memory and threading analysis require `ptrace` to be enabled on Linux platforms. Some newer Linux distributions disable it by default. If `ptrace` is disabled, it results in the message: *"Error: Failed to start the analysis because the scope of ptrace() system call application is limited."*

To work around this issue, enable `ptrace` by setting `/proc/sys/kernel/yama/ptrace_scope` to 1.

#### **INSPECTOR MAY PRODUCE ERRORS IF THE TARGET APPLICATION ATTEMPTS TO SUSPEND ALL THREADS (INSP-471)**

The message *"detected an attempt to suspend an internal thread..."* happens when the target application attempts to suspend all threads, causing the Intel Inspector thread suspension as well. To avoid this error:

1. Disable the **Enable collection progress information** checkbox in the Target tab of the Project Properties dialog box.
2. Disable the **Enable interactive memory growth detection** checkbox in the Analysis Type pane.
3. Rerun the analysis.

Also avoid running an interactive debugging session during analysis.

## **INSPECTOR MAY BEHAVE UNPREDICTABLY OR CRASH WITH CERTAIN LINUX DESKTOP WINDOW MANAGERS**

When using Intel Inspector with some Linux desktop window managers on Linux OS, there are known Linux window manager issues which may cause unexpected behavior (like disappearance of controls or even the whole GUI) or even spontaneous crashes of Intel Inspector. There is no workaround; we recommend switching to a different window manager.

## **THREADING ERROR ANALYSIS: INSPECTOR MAY NOT CAPTURE MAIN THREAD CREATION SITE**

Intel Inspector does not capture the main thread creation site if the binary is built without debug symbol information.

## **7 Attributions**

The license information for third party software that was used to develop Intel® Inspector can be found in `<install_dir>/documentation/en/third-party-programs.txt`.

For the avoidance of doubt, the Intel® Inspector is solely governed by the terms and conditions of the End User License Agreement for Intel® Software Development Product that accompanies the Intel® Inspector.

## **8 Legal Information**

No license (express or implied, by estoppel or otherwise) to any intellectual property rights is granted by this document.

Intel disclaims all express and implied warranties, including without limitation, the implied warranties of merchantability, fitness for a particular purpose, and non-infringement, as well as any warranty arising from course of performance, course of dealing, or usage in trade.

This document contains information on products, services and/or processes in development. All information provided here is subject to change without notice. Contact your Intel representative to obtain the latest forecast, schedule, specifications and roadmaps.

The products and services described may contain defects or errors which may cause deviations from published specifications. Current characterized errata are available on request.

Intel, the Intel logo, Intel Core, VTune, and Xeon are trademarks of Intel Corporation in the U.S. and/or other countries.

\*Other names and brands may be claimed as the property of others.

Microsoft, Windows, and the Windows logo are trademarks, or registered trademarks of Microsoft Corporation in the United States and/or other countries.

Java is a registered trademark of Oracle and/or its affiliates.

OpenCL and the OpenCL logo are trademarks of Apple Inc. used by permission by Khronos.

**Copyright 2010-2018 Intel Corporation.**

This software and the related documents are Intel copyrighted materials, and your use of them is governed by the express license under which they were provided to you (**License**). Unless the License provides otherwise, you may not use, modify, copy, publish, distribute, disclose or transmit this software or the related documents without Intel's prior written permission.

This software and the related documents are provided as is, with no express or implied warranties, other than those that are expressly stated in the License.