

Intel® Advisor XE 2015 Update 1 for Windows*

Release Notes

Installation Guide and Release Notes

4 November 2014

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1 Introduction

Intel® Advisor XE 2015 guides developers to add parallelism to their existing C/C++, Fortran, or C# programs.

Intel Advisor XE provides a standalone graphical user interface (GUI) as well as a command line interface (CLI). Intel Advisor XE also integrates into Microsoft Visual Studio* software. You can use the Intel Advisor XE to:

- Find the most time-consuming serial code regions in your program.
- Insert Intel Advisor XE annotations to identify these as possible parallel code regions.
- Predict approximate parallel performance characteristics of the proposed parallel code regions.
- Check for data sharing problems that could prevent the application from working correctly when parallelized.

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

To learn more about this product's:

- Documentation, help, and samples, see the **Intel Advisor XE Documentation** item in the Start menu program folder. Click: **Start > All Programs > Intel Parallel Studio XE**

2015 > Documentation > Intel Advisor XE Documentation. You can access the product help in a web browser as well by opening the index.htm in the documentation help directory.

- Technical support, including answers to questions not addressed in the installed product, please visit: <http://software.intel.com/en-us/support/>

Please remember to register your product at <https://registrationcenter.intel.com/> by providing your email address. This helps Intel recognize you as a valued customer in the support forum.

2 What's New

Intel Advisor 2015 Update 1

- Improved the custom install directory process
- **Incorporated new Intel® Cilk™ Plus overheads**

Intel Advisor 2015 is a successor product to Intel® Advisor 2013. Intel Advisor provides a set of tools that help you decide where to add parallelism to serial parts of your applications. The key features provided by this new major version since the initial Intel Advisor 2013 release include:

- Significant new [modeling capabilities](#) in the Suitability Report window, including Intel® Xeon Phi™ processor analysis, loop iteration and duration modeling options, and improved scalability graph features and explanations.
- Faster and more efficient annotation collection provides a more responsive GUI and less system load during annotation collection.
- The ability to [create a snapshot](#) of the active result, save it, and view its data. Saved result snapshots are read-only, but can be compared visually with the current active result or other read-only result snapshots.
- You can now pause (and later resume) data collection for uninteresting parts of your target program. Use either the [Pause Collection and Resume Collection](#) annotations or the pause/resume buttons in the command toolbar of the [Survey Report](#) and [Suitability Report](#).
- New [command line options](#) for the advixe command: no-auto-finalize, data-limit, interval, mrte-mode, no-follow-child, start-paused, resume-after, and target-duration-type.
- Various usability and stability improvements. For example, a new Option for Linux* OS systems lets you choose which editor appears when you double-click a Source window line window.

3 System Requirements

Supported Architectures and Terminology

Intel® Advisor XE 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 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™ processor family, running a 64-bit operating system such as Microsoft Windows XP* Professional x64 Edition or Microsoft Windows* 7 x64. If the system is running a 32-bit version of the Windows* operating system, then IA-32 architecture applies instead. Processors from other manufactures supporting the same instruction set running a 64-bit version of the Windows operating system are also supported.

Minimum System Requirements

- 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)
 - Since the Intel Advisor XE 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 Advisor XE, 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
- 2GB RAM
- 4GB free disk space for all product features and architectures
- Supported operating systems:
 - Microsoft Windows* 7 SP1
 - Microsoft Windows Server* 2008 SP2 and 2008 R2 SP1, 32-bit or “x64” editions - embedded editions are not supported
 - Microsoft Windows 8* and 8.1* operating system
 - Microsoft Windows Server* 2012
- Supported Microsoft Visual Studio (and Microsoft Visual C++* compiler) versions:
 - Microsoft Visual Studio* 2010 SP1
 - Microsoft Visual Studio* 2012
 - Microsoft Visual Studio* 2013
- Supported Intel compilers (optional):
 - Intel® C++ Compiler 12 or higher

- Intel® Visual Fortran Compiler 12 or higher
- Native application coding requirements
 - Supported programming languages:
 - Fortran
 - C
 - C++
 - Supported threading methodologies:
 - Intel® Threading Building Blocks (Intel® TBB)
 - Intel® Cilk™ Plus
 - OpenMP
 - Windows* Threads (low-level)
- Managed application coding requirements
 - Supported programming languages:
 - C# (.NET* versions 3.0 to 4.0)
 - Supported threading methodologies
 - C# Thread Class
 - Microsoft* Task Parallel Library (TPL)
- To view PDF documents, you need a PDF reader, such as Adobe Reader* 6 or later

Notes:

1. Intel Advisor XE samples work with the Intel TBB by using the environment variable TBBROOT. Intel TBB is included with the Intel compiler and is available from <http://software.intel.com/en-us/intel-tbb/>. To build the Intel TBB projects, you will need to define the TBBROOT environment variable. To set the TBBROOT environment variable, see the Intel Advisor Help or Getting Started Tutorial.

4 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.

To begin installation:

- Double-click on the executable file to begin installation. If several different downloadable files are available (such as for different components), please read the download web page carefully to determine which file is appropriate for you.

Intel® Advisor XE can be installed on the same system as the Intel® Parallel Advisor 2011.

Activation

You must activate the product to finish installation. Use one of these methods:

- 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.

Intel® Software Manager

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

- Download and install updates for your Intel® Software Development Products.
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- 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 Mac OS* X operating systems.

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

Default Installation Folders

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

- `C:\Program Files (x86)\Intel\Advisor XE 2015`

If you are installing on a system with a non-English language version of Windows OS, the name of the `Program Files (x86)` folder may be different. On IA-32 architecture systems, the folder name is `Program Files`.

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

- `C:\Program Files (x86)\Intel\Advisor XE 2015`
 - `bin32`

- o bin64
- o config
- o documentation
- o include
- o lib32
- o lib64
- o message
- o resource
- o samples

Changing, Repairing and Removing the Product

If you want to modify, repair, or remove the Intel Advisor XE components, open the Control Panel and select the **Add or Remove Programs** applet (or **Programs and Features** in the Microsoft Windows 7 OS), select **Intel Advisor XE 2015** and click **Change/Remove** (or **Uninstall/Change** in the Microsoft Windows 7 OS). 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.

Silent Installation

To learn details of silent non-interactive installation on Windows* systems, refer to the following link: http://software.intel.com/en-us/windows_silent_installation_guide.

Known Installation and Configuration Issues

- Please close Visual Studio sessions before installing, modifying, or removing the Intel Advisor XE from a non-administrator account. Not doing so will affect Visual Studio integration and may result in obscure error messages.
- When installing the Intel® Parallel Studio XE (or similar Intel software suite) on a system with Microsoft Visual Studio 2010 for the first time, you will be asked to initialize the “Local Store” for documentation for Visual Studio 2010. Please follow the instructions of the **Help Library Manager** installation wizard to install the Intel Parallel Studio XE help documentation for Visual Studio 2010. You do not need to re-register the Intel Parallel Studio XE Help documentation when you install future Intel Advisor XE updates. For more information, see <http://msdn.microsoft.com/en-us/library/dd264831.aspx>.

If you encounter problems viewing the Intel Parallel Studio XE (local) help: click **Help > Manage Help Settings > Settings**, and check **I want to use local help**. These set-up steps are needed only once.

- By default, Microsoft Visual Studio 2012 software sets the **Launch in Browser** option to display documentation for integrated products. To view the Intel Advisor XE local help documentation: Choose **Help > Intel Advisor XE 2015 > Intel Advisor XE 2015 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 multiple versions of Microsoft Visual Studio software installed on your system and integrate the Intel Advisor XE into each IDE, removing the integration from one of the IDEs will remove the integrated Intel Advisor XE documentation from both.

There are two options to restore the documentation:

First option:

1. Open the Intel Parallel Studio XE command prompt: **Start > All Programs > Intel Parallel Studio XE 2015 > Analyzers > Command prompt**. You can choose any shortcut here, for example, “IA-32 Visual Studio 2010 mode”).
2. Remove the integration for the Visual Studio version that is missing integrated help. For example, to remove the Intel Advisor XE integration:

With:	Type:
Visual Studio 2010	advixe-vsreg -d 2010

3. Restore the integration. For example, to restore the Intel Advisor XE integration:

With:	Type:
Visual Studio 2010	advixe-vsreg -i 2010

Second option:

- Uninstall the product.
 - Install it again with the desired Visual Studio integration selected.
- Users can install Visual Studio 2010 Service Pack 1 (SP1), which provides an improved help system.

5 Issues and Limitations

Known Issues and Limitations

- Intel® Advisor XE may display a message that the “Project is out of date” before running the data collectors. You do not need to rebuild the project prior to running the collector if you know that the project is up-to-date.
- The Suitability tool cannot accurately measure and analyze the behavior of loops with very small task times (on the order of sub-microseconds) if those tasks are annotated with the TASK_BEGIN/TASK_END annotations. If possible, use the ITERATION_TASK annotation instead.
- When using the Visual Studio 2010 conversion wizard to convert projects to Visual Studio 2010 format, command line arguments in the project properties may be lost. If you are using the Intel Advisor XE samples, the command line arguments can be found in the Intel Advisor XE samples documentation.
- The Suitability Report combines all lock data into a single lock and may not have source line information for LOCK_ACQUIRE and LOCK_RELEASE annotations.

- If your sources include huge source files that contain annotations, be aware that only the first 8 MB of each file will be parsed for annotations. If not all of your annotations are being parsed in such huge source files, consider breaking that source file into several source files each less than 8MB.
- When opening the Intel Advisor XE samples, Visual Studio software will display a warning message related to Intel Cilk Plus projects or list them as unsupported when the Intel C++ Compiler is not installed. This message may be ignored. However, Intel Cilk Plus projects will not compile without an Intel C++ Compiler with Intel Cilk Plus support, such as the Intel Parallel Studio XE (or similar Intel software suite).
- The Intel Advisor XE context menu may be unavailable from the code editor in Visual Studio 2010. All of the Intel Advisor XE capabilities can still be accessed from the **Tools** menu or the Intel Advisor XE Workflow.
- When using Visual Studio 2010, links in the Overall Workflow Diagram of the Intel Advisor XE Help return a "topic you requested could not be found in local help" error. To workaround this issue, click the Back button and use the links in the next help topic Workflow Step Description to navigate to the corresponding workflow topics in the Intel Advisor XE help.
- In the Correctness Report, the following sequence of actions may cause the Intel Advisor XE and Visual Studio software to crash: select the "Not fixed" **State** filter category in the Filter pane, mark the last remaining "Not fixed" problem as fixed in the Observation pane, and then remove the "Not fixed" filter by clicking the **All** button in the **State** filter or clicking the **Deselect all search criteria** button. To workaround this issue do one of the following:
 1. Avoid marking the last remaining problem as "Fixed" in the Observation pane while the "Not fixed" filter is applied.
 2. Avoid removing the "Not fixed" filter if all of the problems have been marked as "Fixed".
- Navigating or interacting with the Intel Advisor XE Correctness Report while Correctness analysis is still running may cause the GUI to freeze or display empty Correctness results.
- The Survey Report may incorrectly report loops if a function contains calls to a non-returning function such as the `exit()` function.
- Loops within a function that does not contain debug information may not be reported as a loop in the Survey Report. For the suggested build settings, see the help topics under Choosing and Building a Target > Build Settings. After you fix the build settings to specify debug information, rebuild the target and run Survey analysis again.

- After analyzing the specified target executable, the Survey tool may report that no significant hotspot areas were detected. In this case, view the collected result using the Survey Report window. The suggested build settings are described in the help topics under Choosing and Building a Target > Build Settings.
- If debug information correlating an instruction to source code is not available to an Intel Advisor XE tool, the tool cannot correlate collected data with source code. In this case it will show an empty field, question mark, or broken icon. Source correlation may not be available for many different reasons, including:
 1. Omitting debug information options when building the target executable – see the help topics under Choosing and Building a Target > Build Settings.
 2. A compiler error.
 3. The compiler not generating debug information for this specific source line.
 4. The compiler not generating debug information for this specific source file.
 5. The linker not copying the debug information into the debug information database.
 6. The debug information database not being found by the finalization step in the Intel Advisor XE, because it was not moved along with the executable to the location where the Intel Advisor XE is being run.
 7. When using the Intel Advisor XE GUI, insufficient project properties were specified for the Binary/Symbol Search tab. In this case, see the help topic Specifying Project Properties Using the Intel Advisor XE GUI.
- Do not close the Intel Advisor XE GUI or Visual Studio software while expanding the Survey tree. Doing so may cause the product to crash or hang.
- Intel Advisor XE may present incorrect or incomplete information if local character sets are used. For general character set support, use Unicode.
- To build the Intel TBB versions of the samples using Visual Studio 2012, make sure the Intel TBB version installed is 4.1 or higher.
- Intel Advisor XE samples may not build correctly with Visual Studio 2010 if Visual Studio 2012 is also installed. In this situation the following link error may occur:

LINK : fatal error LNK1123: failure during conversion to COFF: file invalid or corrupt

To workaroud this issue, ensure that Visual Studio 2010 is updated to SP1 or try disabling Incremental Linking in the Project Properties.

- On Windows Server 2012 systems, if you have problems viewing Microsoft Visual Studio 2012 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**.

- On Windows Server 2012 systems, if you find that you cannot display Getting Started Tutorials from within Internet Explorer 10, correcting a security setting for Microsoft Internet Explorer usually corrects the problem. From Tools > Internet Options > Security, add "about:internet" to the list of trusted sites. Optionally, you can remove "about:internet" from the list of trusted sites after you are finished viewing the documentation.

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Libunwind

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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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*/

Limxml2

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