

Intel® Integrated Native Developer Experience 2015 Update 2.1 (Windows* Host)

Release Notes and Installation Guide

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Introduction

Intel® Integrated Native Developer Experience 2015 Update 2 provides a suite of tools to write native C++ code that targets Android*-based devices on Intel® architecture and ARM* architecture, and Windows*-based devices on Intel® architecture only.

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

To learn more about this product, see the [Related Documentation](#) section.

Acronyms and Terms

The following acronyms and terms are used in this document (arranged in alphabetic order):

Acronym/Term	Description
Intel® HAXM	Intel® Hardware Accelerated Execution Manager
Intel® INDE	Intel® Integrated Native Developer Experience
Intel® IPP	Intel® Integrated Performance Primitives
Intel® TBB	Intel® Threading Building Blocks
Intel® VT	Intel® Virtualization Technology

New in this Release

- Issue with OpenCV Image Watcher download/installation has been fixed
 - Checksum for ImageWatch plugin was corrected to allow download and install along with OpenCV component.
- New versions of the below listed features
 - Context Sensing SDK
 - Media SDK for Windows*
 - Media RAW Accelerator for Windows*
 - OpenCL™ Code Builder

The following sections detail what is new for each feature of Intel® INDE in the Update 2.1.

IDE Integration for Android*

- No new features

Debugger Extension for Android* in Visual Studio*

- No new features

Context Sensing SDK

New Context Type has been added:

- Beacon - This type helps to get a signal from a beacon in order to understand where the user currently is. For example, a store owner can get a signal from a beacon installed in her store to understand how close a customer is to the beacon in the store and be able to extrapolate the customer's interest in different types of products.
- Renren integration – Context SDK has an additional capability to use login provider Renren to support developers from China. This can be used by developers across the world as well.
- Facebook integration – Context SDK can be used with Facebook as a login provider.

Context Sensing SDK for Windows has been released and can be downloaded directly from <https://software.intel.com/en-us/context-sensing-sdk/download>

Intel® IPP

No new features

Intel® TBB

No new features

OpenCL™ Code Builder

Fixes for critical failures due to the GFX driver for Windows 10.

Intel® C++ Compiler

No new features

System Analyzer

No new features

Platform Analyzer

No new features

Graphics Frame Analyzer for OpenGL* ES

No new features

Media SDK for Windows*

The Intel® INDE 2015 Media SDK for Windows* introduces API version 1.16. This version is backwards compatible with the previous API version 1.15. Following fixes, improvements and features were added:

- AVC and HEVC decoders enabled with `mfxInfoMFX:MaxDecFrameBuffering` tristate option, to allow decoder decide number of surfaces allocation based on `max_dec_frame_buffering` bitstream restriction flag in VUI header.
- AVC Encode tri-state options to disable or change specific flags in VUI header added to `mfxExtCodingOption3` extended buffer:
`AspectRatioInfoPresent`; `OverscanInfoPresent`; `OverscanAppropriate`; `TimingInfoPresent`; `BitstreamRestriction`.
- AVC Encode `mfxExtCodingOption3` extended with `IntRefCycleDist` option, allowing to enable Intra Refresh mode with specified distance in frames between cycles.
- AVC Encode `RecoveryPointSEI` now supported without Intra Refresh functionality and can be inserted for each I frame.
- VPP Composition Reset number of streams change support added for case when new number of streams less than initialization.
- VPP Alpha Blending first frame processing and background processing added.
- Picture drop when aspect ratio changes in MPEG-2 decoder fixed for hardware acceleration.
- AVC Encode support for Intra Refresh on base layer when temporal scalability enabled added.
- Maximum supported resolution for Screen Capture plug-in increased to 4096x4096 to support 4K display capture.
- Multiple memory leak issues for Screen Capture plug-in fixed.
- Screen Capture plugin fixed issue with cropped picture capturing non 16 pixel display height
- Tracer updated to 1.16 API.
- AVC Encode Hardware acceleration `DisableDeblockingIdc 2` feature added.
- SW library Windows 10 preview support added.
- AVC Encode Hardware acceleration for drivers supporting Windows 10, extended with next features:

- Added support of direct ARGB surface passing to encoder improving desktop capture scenarios performance.
- Added new extended buffers MFX_EXTBUFF_DIRTY_RECTANGLES with corresponding structure mfxExtDirtyRect and MFX_EXTBUFF_MOVING_RECTANGLES with corresponding structure mfxExtMoveRect for encode optimization in desktop capture scenarios. MFX_EXTBUFF_DIRTY_RECTANGLES is compatible with ScreenCapture plugin to enable dirty rectangle detection, currently optimized on CPU.
- ScenarioInfo/ContentInfo hints added to enable optimizations in encoder for particular content and scenarios. It is only hints, so App can set them and Encoder will enable or not optimizations for particular scenario.

Audio for Windows*

- No new API added

Media RAW Accelerator for Windows*

- Product version 1.0.5 / Plug-in version 1.15.5.75
Fixed partial acceleration reporting for platforms with 3rd generation core and earlier.
- Product version 1.0.6 / Plug-in version 1.16.6.120
 - 6 th generation Intel® Core processor graphics support preview added.
 - Windows 10 support preview.
 - New multi-color Gamma Correction API: mfxExtCamFwdGamma, MFX_EXTBUF_CAM_FORWARD_GAMMA_CORRECTION.
 - New lens geometry and Chroma aberration correction API: mfxExtCamLensGeomDistCorrection, MFX_EXTBUF_CAM_LENS_GEOM_DIST_CORRECTION, supported only starting from 6th generation Intel® Core.

Media for Mobile

No new features

New in Intel® INDE Update 2:

- Support for 14nm SoC code named Cherry Trail
- Support for Windows* 10 Desktop (Preview) Host and Target
- Limited Support for Windows* 10 Mobile Target
- Limited Support for Visual Studio* 2015 (all editions)
- Graphics Frame Analyzer for OpenGL*
- New beta or preview features
 - Tamper Protection [Beta]
 - OpenCV Library [Beta]

- OpenCL™ Code Analyzer Tool for Microsoft* Visual Studio* [Preview]

Feature	Cherry Trail (Windows*/ Android* targets)	Windows* 10 Desktop (Preview) Host/Target	Windows* 10 Mobile Target	Visual Studio* 2015
IDE Integration for Android*	(N/A) / Yes	Yes / (N/A)	N/A	No
Debugger Extension for Android in Visual Studio	(N/A) / Yes	Yes / (N/A)	N/A	No
Context Sensing SDK	(N/A) / No	Yes / (N/A)	N/A	No
Intel® IPP	Yes / Yes	Yes / Yes	Yes	Yes
Intel® TBB	Yes / Yes	Yes / Yes	Yes	Yes
OpenCL™ Code Builder	Yes / Yes	Yes / No	No	Yes
Intel® C++ Compilers	Yes / Yes	No / No	No	No
System Analyzer, Platform Analyzer, Graphics Frame Analyzer for DirectX* and OpenGL*	Yes / No	Yes / Yes	No	N/A
Media for Mobile	Yes / Yes	Yes / (N/A)	Yes	Yes
Media SDK for Windows*, Audio for Windows*, Media RAW Accelerator for Windows*	Yes / Yes	Yes / Yes	N/A	Yes
Tamper Protection [Beta]	Yes/ (N/A)	Yes / No	No	N/A
OpenCV [Beta]	Yes/Yes* *32-bit only	Yes / No	No	No

Fixed Issues

- Debugger Extension for Android in Visual Studio can now debug 32-bit or 64-bit applications on Android* Lollipop.
- If Android Studio* or Eclipse* is chosen as IDE, you now have two options:
 - 1) You can choose Intel® INDE to install the plug-ins into the existing IDE, in which case you provide the installation path for the IDE during Intel® INDE installation.

- 2) You can let Intel® INDE install the IDE along with the plug-ins. You may choose to retain any pre-existing IDE installations.

Known Issues

- If the user system has Visual Studio 2015 CTP or .Net 4.6 installed, it may prevent Intel® INDE installation.
This is because .Net 4.6 changes the paths of the existing .Net 4.5 installation, which puts the user system in an unsupported state and that may cause some errors during INDE installation. This requires a fix from Microsoft but here is a workaround.
Workaround:
 - 1) Uninstall Visual Studio 2015 CTP along with .Net 4.6
 - 2) Install .Net 4.5
 - 3) Install INDE Update 2
 - 4) Install Visual Studio 2015 CTP now.
- With Windows 10 Beta Build 10009, issues were seen with environment variables getting set post-install. Restarting your PC usually fixes this.
- Installation of Intel® INDE can cause a possible overflow of system environment variables making the system unusable. See the [full length article here](#).
This is due to the limitation by Windows* to the length of the strings that you use in the System PATH variable.
 - On computers running Microsoft Windows* XP or Windows Server 2003, the PATH environment variable size that you can use is 2047 characters.
 - On computers running Microsoft Windows* 7 and later, the maximum PATH environment variable size that you can use is 4095 characters (you must restart your system).

Since Intel® INDE has many component features that set PATH variables on their own, this is a likely scenario. The workaround follows.

Workaround:

1. Restart the system. After restarting the system, PATH is no longer empty, but may get truncated to 2047 (4095) characters.
2. If the system restart does not help:
 - i. Launch `c:\windows\system32\regedit.exe`.
 - ii. Go to the registry hive
`"HKLM\SYSTEM\CurrentControlSet\Control\Session Manager\Environment"`.
 - iii. Clean up unnecessary directories from the "Path" key.
 - iv. Restart the system.

Note: In some exceptional cases if the system is not able to start:

- i. Login in the safe mode
- ii. Open the command prompt shell and type:

```
reg add "HKLM\SYSTEM\CurrentControlSet\Control\Session
Manager\Environment" /v Path /t REG_EXPAND_SZ /d
^%SystemRoot%\system32;^%SystemRoot%
```

- You may see the following error when launching the Android Virtual Device Manager within Eclipse:

```
PANIC: Missing arch-specific emulator program:
<install_dir>\Intel\INDE\IDEIntegration\ADT\sdk\tools\emulator-
x86_64
```

Workaround: Launch Android SDK Manager and update the “Android SDK Tools” to the latest version.

Where to Find the Product

You can download this product from <http://www.intel.com/software/inde>. Please see [Installation Notes](#) for detailed instructions.

Related Documentation

Refer to Intel® INDE’s suite-level [Getting Started Guide](#) that includes links to the documentation for the various Intel® INDE features.

Release Content

Intel® INDE includes the features listed in the table below. You can find Release Notes for each of these features in the path or link provided in the table below:

Feature	Version	Release Notes Path
IDE Integration for Android*	1.5.9	https://software.intel.com/en-us/articles/release-notes-for-ide-integration-for-android-for-windows-for-inde
Context Sensing SDK	1.7.0.522	https://software.intel.com/en-us/context-sensing-sdk/documentation
Media SDK for Windows*	6.0.0000.388	https://software.intel.com/sites/default/files/mediasdk_release_notes.pdf
Media RAW Accelerator for Windows*	1.0.6	https://software.intel.com/sites/default/files/media-raw-accelerator_release_notes.pdf
Media for Mobile	1.2.2675	https://software.intel.com/en-us/articles/intel-inde-media-for-mobile-release-notes-and-support

Feature	Version	Release Notes Path
Audio for Windows*	6.0.0.1	https://software.intel.com/sites/default/files/managed/48/ce/release_notes_audio.pdf
OpenCL™ Code Builder	2015 R2	https://software.intel.com/en-us/articles/opencl-code-builder-release-notes
Intel® TBB	4.3 Update 4	https://software.intel.com/en-us/articles/intel-threading-building-blocks-release-notes
Intel® IPP	8.2 Update1	https://software.intel.com/en-us/articles/intel-ipp-82-library-release-notes
Intel® C++ Compiler for Android*	15.0 Update2	https://software.intel.com/en-us/articles/intel-c-compiler-release-notes-for-intel-integrated-native-developer-experience-2015
Intel® C++ Compiler for Windows*	15.0 Update2	https://software.intel.com/en-us/articles/intel-c-compiler-release-notes-for-intel-integrated-native-developer-experience-2015
Graphics Frame Analyzer	2015 R1	https://software.intel.com/en-us/articles/intel-gpa-release-notes
Graphics Frame Debugger	2015 R1	https://software.intel.com/en-us/articles/intel-frame-debugger-release-notes
System Analyzer	2015 R1	https://software.intel.com/en-us/articles/intel-gpa-release-notes
Platform Analyzer	2015 R1	https://software.intel.com/en-us/articles/intel-gpa-release-notes
Debugger Extension for Android in Visual Studio	12.0.21	https://software.intel.com/en-us/articles/debugger-extension-for-vs-android-release-notes-for-intel-inde-2015
OpenCV	Beta	https://software.intel.com/en-us/articles/opencv-release-notes
Tamper Protection	Beta	https://software.intel.com/en-us/articles/tamper-protection-beta-release-notes

Third Party Tools

Please refer to [Release Notes of IDE Integration](#) for a list of third party products installed by Intel® INDE.

System Requirements

Intel® INDE requires the following in the host machine:

Hardware:

These minimum requirements are based on the full installation of the product. Some advanced features may require advanced hardware. Please check [Release Content](#) to find the Release Notes for each feature/component, which details the requirements for that feature/component.

- A PC based on 2nd, 3rd, 4th, or 5th generation Intel® Core™ processor
 - Incompatible or proprietary instructions in non-Intel processors may cause the analysis capabilities of this product to function incorrectly.
 - For the best experience, a multi-core system is recommended.
- 4 GB RAM
- 21 GB free disk space for all features of the Ultimate Edition, 17 GB for Professional Edition and 16 GB for Starter Edition. Additional 4GB if Beta features are selected to install.

Software:

- Java* JDK 7 or later
- 64-bit version of Microsoft* Windows* 7 or 8 or 8.1 operating system
- Microsoft .NET 4.5+

If Microsoft* Visual Studio* IDE Integration is selected to install:

- Microsoft* Visual Studio* Community/Professional/Ultimate/Team 2012 or 2013 with C++ component should be already installed

For detailed software requirements for any feature, refer to the Release Notes of that respective component as noted in the [Release Content](#) section. Android Studio* and Eclipse* IDEs are installed (if selected during installation) by the IDE Integration for Android* development feature of Intel INDE.

Supported Target Devices:

- Devices running 32-/64-bit Android* 4.3+ on Intel® or ARM* processors
- Devices running 32-/64-bit Windows* 7 or 8 or 8.1 on Intel® processors

Installation Notes

To install the product, you need a valid license file or serial number. If you are evaluating the product, you can also choose the option **Evaluate this product (no serial number required)** during installation. Ultimate Edition of the product will be installed if you choose this option.

If you received your product by downloading it, double-click on the executable file (.EXE) to begin installation.

You do not need to remove previous versions of Intel INDE 2015 before installing a newer version of the Intel INDE 2015 product. Update 2 release comes with some Beta features. [Click here](#) to sign up and learn about the new Beta features in Intel INDE.

By default, the install directory is: C:\Intel\INDE. You can also specify a different installation location, but it should not have any spaces. This is because some components do not support spaces well.

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

Frequently Asked Questions

- How do I install updates for the product?

This is done through a utility called Intel® Software Manager which is installed when any of the software products from Intel is installed. You may invoke Intel® Software Manager from the Start-Up menu to check for any updates. You will also receive pop-up messages if a new update is available. For more information, refer to:

<https://software.intel.com/en-us/articles/what-is-intel-software-manager>

- How do I renew my license?

If you own Professional or Ultimate (only those have licenses), [Intel® Software Manager](#) provides you “Licenses” tab where you can check support period and enter new Serial Number with extended support period.

- How do I know what edition of the product is installed?

Intel® Software Manager provides the information for Professional and Ultimate Editions. If there is no information displayed for Intel® INDE but you have the product installed, then what you have is the Starter Edition.

- How do I upgrade the product from Starter to Professional or Ultimate Edition?

Start installer once more and enter appropriate Serial Number in the activation dialog.

- What if I want to install Intel® INDE plug-ins into more than one IDE?

Start the installer once more and choose “Modify” and choose the IDE. Intel® INDE will install the plug-ins to the chosen IDE and will detect the already installed components of Intel® INDE and install only the required ones.

Default Installation Folders

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

C:\Intel\INDE

Folder arrangement described below is created during Intel® INDE installation. Not all folders may be present in a given installation.

- IDE Integration for Android* -
 - For Microsoft* Visual Studio* <install_dir>\IDEintegration
 - NDK
 - ANT
 - Docs
 - SDK
 - For Eclipse* : <install_dir>\IDEintegration
 - Docs
 - NDK
 - ANT
 - ADT
 - For Android Studio* : <install_dir>\IDEintegration
 - Docs
 - NDK
 - AndroidStudio
- OpenCL™ Code Builder: <install_dir>\code_builder_5.2.0.65
 - android-preinstall
 - android-preinstall64
 - bin
 - doc
 - eclipse-plug-in
 - include
 - lib
- Context Sensing SDK: <install_dir>\context_sdk_1.7.0.522
 - Docs
 - Samples
- Media SDK for Windows*: <install_dir>\media_sdk_6.0.0.388
 - bin
 - win32
 - x64
 - doc
 - igfx_s3dcontrol
 - include
 - lib

- o include
 - o lib
 - win32
 - x64
 - o opensource
 - mfx_dispatch
 - o samples
 - o tools
- **Media RAW Accelerator for Windows*:** <install_dir>\media_raw_accelerator_1.0.6
 - o bin
 - o doc
 - o include
 - o lib
 - win32
 - x64
 - o opensource
 - **Media for Mobile:** <install_dir>\media_for_mobile_1.2.2675
 - o Android
 - o WindowsRT
 - **Audio for Windows*:** <install_dir>\media_audio_6.0.0.1
 - o bin
 - o doc
 - o include
 - **Intel® TBB:** <install_dir>\tbb_4.3.4
 - o Android
 - **Intel® IPP:** <install_dir>\ipp_8.2.1.012
 - o Android
 - Documentation
 - X86
 - X64
 - o Documentation
 - o Windows
 - Documentation
 - X86
 - X64
 - **Intel® C++ Compiler for Android*:** <install_dir>\icc_android_15.0.2.018
 - o bin
 - o compiler
 - o Documentation
 - o eclipse_support

- Samples
 - Toolchains
- **Intel® C++ Compiler for Windows*:** <install_dir>\icc_windows_2015.0.2.014
 - bin
 - compiler
 - Documentation
 - redistributable
 - Samples
- **Debugger Extension for Android in Visual Studio:**
<install_dir>\debugger_extension_2015.0.1.013
 - AndroidDebuggerExtension
- **Graphics Frame Analyzer for OpenGL*:**
<install_dir>\frame_analyzer_for_opengl_15.1.0.242903
- **Graphics Frame Analyzer for DirectX*:** <install_dir>\GPA 15.1.0.242923
- **System Analyzer:** <install_dir>\ GPA 15.1.0.242923
- **Platform Analyzer:** <install_dir>\ GPA 15.1.0.242923
- **OpenCV:** <install_dir>\ OpenCV_3.0.0.53
 - Etc
 - Include
 - Java
 - Python
 - Sdk
 - VSIntegration
 - X64
 - X86
- **Tamper Protection:** <install_dir>\TamperProtection_0.1.22363
 - Bin
 - Doc
 - Inc
 - Lib
 - Tutorials

Changing, Updating and Removing the Product

- How do I uninstall the product?

Go to **Control Panel > Programs > Program > Uninstall a program** and choose Intel® INDE to be uninstalled.

Or start the installer again and choose to remove the product.

- How do I add/modify the components?

Start the installer again and choose “Modify” and choose the features.

Legal Information

https://software.intel.com/sites/default/files/managed/4d/59/EULA_INDE_Update2_Win.pdf

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