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Intel(R) Trace Analyzer and Collector 9.0 Update 3 for Linux\* OS  
Release Notes  
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Overview  
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Intel(R) Trace Collector is a low-overhead tracing library that performs event-based tracing in applications. You can analyze the collect trace data for performance hotspots and bottlenecks. The product is completely thread safe and integrates with C/C++, FORTRAN and multithreaded processes with and without MPI. It supports fail-safe mode. Additionally it can check for MPI programming and system errors. Intel(R) Trace Analyzer provides a convenient way to monitor application activities gathered by the Intel Trace Collector through graphical displays. You can view the desired level of detail, quickly identify performance hotspots and bottlenecks, and analyze their causes.

Bundled together, the Intel(R) Trace Analyzer and Collector provide optimized analysis and visualization capabilities. Together they offer fast graphical rendering of complex profiling data and they easily scale up to hundreds of processes.

Intel(R) Trace Analyzer is available on Linux\* OS, Microsoft\* Windows\* OS and OS X\*. Intel(R) Trace Collector is available on Linux\* OS and Microsoft\* Windows\* OS.

To receive technical support and updates, you need to register your Intel(R) Software Development Product. See the Technical Support section.

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What's New  
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Intel(R) Trace Analyzer and Collector 9.0 Update 3 for Linux\* OS is an update release which includes the following new features compared to the Intel(R) Trace Analyzer and Collector 9.0 Update 2 (see product documentation for more details):

- o Support for OpenMP\* regions
- o A few bug-fixes
- o For changes in MPI Performance Snapshot (MPS), see the What's New section of the MPS User's Guide.

Intel(R) Trace Analyzer and Collector 9.0 Update 2 for Linux\* OS is an update release which includes the following new features compared to the Intel(R) Trace Analyzer and Collector 9.0 Update 1 (see product documentation for more details):

- o Introduced an interoperability feature with Intel(R) VTune(TM) Amplifier XE. See the Intel Trace Analyzer Reference Manual for details.
- o Introduced Intel(R) Trace Analyzer for OS X\*.
- o Introduced a preview version of MPI Performance Snapshot for Linux\* OS. See the MPI Performance Snapshot User's Guide for details.
- o A few bug-fixes

Intel(R) Trace Analyzer and Collector 9.0 Update 1 for Linux\* OS is an update release which includes the following new features compared to the Intel(R) Trace Analyzer and Collector 9.0 (see product documentation for more details):

- o Updated directory structure: added symbolic links. See README.txt for more details.
- o Changed settings for non-default installation path. If you choose to install Intel(R) Trace Analyzer and Collector to a non-default path, itac/<version>.<package> will be appended to the selected installation path. Use symbolic links to this path if you need a specific pathname.
- o A few bug-fixes

Intel(R) Trace Analyzer and Collector 9.0 for Linux\* OS is a release which includes the following new features compared to the Intel(R) Trace Analyzer and Collector 8.1 releases (see product documentation for more details):

- o MPI-3 support
- o New mpirun keys
- o Experimental TIME-WINDOWS support
- o System calls profiling
- o Performance Assistant
- o Summary Page
- o Visual appearance enhancement
- o Contextual assistance for main dialogs
- o New tutorials
- o IA-32 architecture support has been dropped
- o itcpin support has been dropped

Intel(R) Trace Analyzer and Collector 8.1 Update 4 for Linux\* OS is an update release which includes the following new features compared to the Intel(R) Trace Analyzer and Collector 8.1 Update 3 (see product documentation for more details):

- o Improved raw data compression
- o New online documentation format
- o A few bug-fixes

Intel(R) Trace Analyzer and Collector 8.1 Update 3 for Linux\* OS is an update release which includes the following new features compared to the Intel(R) Trace Analyzer and Collector 8.1 Update 2 (see product documentation for more details):

- o New Trace Map
- o All timeline settings in the Preferences dialog box
- o Context-sensitive help
- o A few bug-fixes

Intel(R) Trace Analyzer and Collector 8.1 Update 2 for Linux\* OS is an update release which includes the following new features compared to the Intel(R) Trace Analyzer and Collector 8.1 Update 1 (see product documentation for more details):

- o Graphical User Interface (GUI) install capability
- o New toolbar
- o Event Timeline settings in the Preferences dialog box
- o New icons in the menu
- o A few bug-fixes

Intel(R) Trace Analyzer and Collector 8.1 Update 1 for Linux\* OS is an update release which includes the following new features compared to the Intel(R) Trace Analyzer and Collector 8.1 (see product documentation for more details):

- o Welcome Page functionality
- o New Preferences dialog
- o Added cache creation progress bar
- o Visual appearance enhancement
- o Improved stability
- o MPI\_Pcontrol support

Intel(R) Trace Analyzer and Collector 8.1 for Linux\* OS is an update release which includes the following new features compared to the Intel(R) Trace Analyzer and Collector 8.0 Update 3 (see product documentation for more details):

- o New interactive help system with support for non-ASCII installation path
- o New documentation in the HTML format
- o Intel(R) Composer XE 2013 support

The Intel(R) Trace Analyzer and Collector 8.0 Update 3 for Linux\* OS is an update release which includes the following new features compared to the Intel(R) Trace Analyzer and Collector 8.0 Update 2 (see product documentation for more details):

- o File descriptor virtualization
- o Experimental scalable tracefile format
- o Advanced aggregation
- o Seek and jump function
- o Intel(R) Composer XE 2011 Update 6 support

The Intel(R) Trace Analyzer and Collector 8.0 Update 2 for Linux\* OS is an update release which includes the following new features compared to the Intel(R) Trace Analyzer and Collector 8.0 Update 1 (all new feature details are listed below; other documents are unchanged):

- o Improved MPI correctness checking trace file creation
- o Fixes to the cache creation process in CLI mode
- o Fixes to the trace merging function
- o Intel(R) Composer XE 2011 Update 4 support

The Intel(R) Trace Analyzer and Collector 8.0 Update 1 for Linux\* OS is an update release which includes the following new features compared to the Intel(R) Trace Analyzer and Collector 8.0 (see product documentation for more details):

- o Reducing the time spent in application code through merge separation
- o A decrease in trace load time due to the introduction of intermediate (summary) data reads during startup
- o Integration of a new installer technology plus the introduction of a new Intel(R) Trace Analyzer FLEXIm\* module
- o Intel(R) Composer XE 12.0 Beta support

The Intel(R) Trace Analyzer and Collector 8.0 for Linux\* OS boasts the following

new features compared to previous versions (see product documentation for more details):

- o Application Imbalance diagram for simplified application analysis
- o Addition of an Ideal Interconnect Simulator (IIS) to understand application balance
- o Custom Plug-in Framework (CPF) to simulate application behavior over different interconnects
- o Intel(R) Trace Analyzer Projects to save working environment

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Key Features  
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This release of the Intel(R) Trace Analyzer and Collector supports the following major features:

- Advanced GUI: user-friendly interface, high-level scalability, support of structured trace file (STF) trace data, runs on Linux\* OS, Microsoft\* Windows\* OS and OS X\*
- Aggregating and Filtering: detailed views of runtime behavior grouped by functions or processes
- MPI Communicator: display of communication metrics for an arbitrary time interval for MPI
- Fail-Safe Tracing: improved functionality on prematurely terminated applications with deadlock detection
- Intel(R) MPI Library Interface: support of tracing on internal MPI states, support of MPI-IO
- Correctness checking: check for MPI and system errors at run-time (including distributed memory checking)
- ROMIO\*: extended support of MPI-2 standard parallel file I/O
- Comparison feature: compare two trace files and/or two regions (in one or two trace files)
- Counter Timeline: analyze counter data collected through provided Performance Application Programming Interface (PAPI) and OS modules or through manual use of the Intel Trace Collector API
- Integrated online help and a separate command line interface for the Intel Trace Analyzer

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Product Contents  
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This Product package contains the following components:

Intel(R) Trace Analyzer and Collector for Linux\* OS

MPI Performance Snapshot for Linux\* OS

Documentation for the Intel(R) Trace Analyzer and Collector can be found at <installation\_directory>/doc. The ITA\_Reference\_Manual.pdf includes a tutorial introduction for the Intel Trace Analyzer and the ITC\_Reference\_Manual.pdf documents the Intel Trace Collector.

The Intel Trace Analyzer comes with an online help system (html) while the Intel Trace Collector provides man pages on Linux\* OS.

NOTES: Adobe Acrobat Reader\* or another pdf reader such as Xpdf\* is required to view the product documentation.

Third-party sources of the components of the Intel Trace Analyzer and Collector, for example those released under GPL, may be downloaded from <http://software.intel.com/en-us/articles/intel-cluster-tools-open-source-downloads>.

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Installation  
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To install the Intel Trace Analyzer and Collector, execute 'install.sh'. You will be prompted for an installation directory which defaults to /opt/intel/itac/<version#>.<package#>. You will also be asked to select which components should be installed. It is recommended to use identical install paths on all nodes, through appropriate mounting or creating multiple copies. See the built-in help pages (--help) to get more information about the installer.

GUI install capability is equal to the command line interface functionality. You can start GUI install instead of command line one with the following command:

```
./install.sh -gui-mode
```

There is a prerequisite: X-server should be up and running.

After installation, read the documentation in '<installation\_directory>/doc'.

Before using the Intel Trace Analyzer and Collector, you should source <installation\_directory>/bin/itacvars.[c]sh to set the appropriate environment variables for smooth functioning of the software. Read the user guide for details on how to switch between different MPI implementations.

To invoke the Intel(R) Trace Analyzer execute '<installation\_directory>/bin/traceanalyzer'.

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Installing the License  
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The Intel Trace Analyzer and Collector uses Macrovision Corporation FLEXlm\* electronic licensing technology. License management is transparent to you. During the installation, you will be prompted for a valid license, which is required to successfully complete the installation of the Intel Trace Analyzer and Collector. On Linux\* OS, the provided scripts itacvars.sh or itacvars.csh ensures that the path of your license file is contained in the environment variable INTEL\_LICENSE\_FILE.

Since the Intel(R) Trace Analyzer uses a time-limited license, the license file must remain in place on the system.

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## Uninstalling Intel(R) Trace Analyzer and Collector

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To uninstall the Intel Trace Analyzer and Collector, run the script '`<installation_directory>/uninstall.sh`'.

To uninstall the Intel Trace Analyzer and Collector in the GUI-mode, enter the following command:  
`./uninstall.sh -gui-mode`

Note: Uninstalling the Intel Trace Analyzer and Collector will remove the software components while keeping the license file and other files in `<installation_directory>` which may have been created by you. It may also not reset its entry in the `INTEL_LICENSE_FILE` environment variable.

The Intel Trace Analyzer and Collector software and licenses can coexist with previous versions.

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### Special Features and Known Issues

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When product is installed on local folders, but `/opt` or `$HOME` folders are shared across nodes (and they are slow shares), the installation time may slightly increase because of the Intel(R) Software Manager unpacking to these folders.

Static Intel(R) Trace Collector libraries require Intel(R) MPI Library version 5.0 or higher.

Tracing of the MPI application, which calls the `MPI_Comm_spawn` function, is not supported by the current version of the Intel Trace Collector.

Intel Trace Analyzer may get into an undefined state if too many files are opened at the same time.

Certain versions of `ld` (for example the ones distributed with the Red Hat\* Enterprise Linux\* 4) have problems linking with the Intel Trace Collector shared libraries. As a workaround, you can use the static libraries or specify the following options to `ld`: `"-Wl,--allow-shlib-undefined -Wl,--noinhibit-exec"` which will result in a correct binary.

In some cases symbols information may appear incorrectly in the Intel Trace Analyzer if you discarded symbols information from object files.

If you are working with the Intel(R) MPI Library version 3.x, use the arguments `"-L$VT_ROOT/lib -IVT $VT_ADD_LIBS"` for the compiler wrappers `mpicxx` and `mpicpc` instead of the standard `"-trace"` option.

MPI Correctness Checking is available for the Intel(R) MPI Library only.

You need the Intel(R) MPI Library 4.1 Update 1 (or higher) for Linux\* OS to run MPI applications and collect traces on the Intel(R) Xeon Phi(TM) Coprocessor.

Resolution of the default timer on the Intel(R) Xeon Phi(TM) Coprocessor may be lower than that on the host. Set the environment variable VT\_TIMER to "CPU\_Norm" to get correct traces from the applications running on the Intel(R) Xeon Phi(TM) Coprocessor alone.

See the ITC Reference Manual for more details on the timers.

Save the traces to an NFS mounted drive due to memory limitations on the Intel(R) Xeon Phi(TM) Coprocessor.

Intel(R) Trace Analyzer works on the host only.

Intel(R) Trace Analyzer currently requires libpng 1.2.x (libpng12.so), therefore this particular version of libpng library must be available on the system, otherwise Intel Trace Analyzer cannot be started in graphical mode.

See the Reference Manuals for details.

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System Requirements  
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Supported Hardware  
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Systems based on Genuine Intel(R) 64 processors:

Intel(R) Core(TM) processor family or higher

Intel(R) Xeon(R) processors recommended

1 GB of RAM per core

2 GB of RAM per core recommended

1 GB of free hard disk space

Intel(R) Xeon Phi(TM) Coprocessor (codename: Knights Corner) based on the Intel(R) MIC Architecture

Supported Software  
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Operating Systems: (issues including installation ones are possible for Operating Systems that are not released at the date of Intel(R) Trace Analyzer and Collector 9.0 Update 2 release)

Systems based on the Intel(R) 64 architecture:

Red Hat\* Enterprise Linux\* 6, 7,

Fedora\* 20, 21,

CentOS\* 6.0,

SuSE\* Linux Enterprise Server\* 11, 12,

Ubuntu\* LTS 12.04, 14.04,

Debian\* 6, 7

Note: You must use the Intel(R) MIC Software Stack 2.1 Beta or higher for the respective host operating system.

Intel(R) MIC Software Stack may support specific operating system/kernel only. See the Intel(R) MIC Software Stack documentation for the most recent specific operating system requirements.

## MPI implementations

Systems based on the Intel(R) 64 architectures:

- Intel(R) MPI Library 3.x
- Intel(R) MPI Library 4.x
- Intel(R) MPI Library 5.x

## Compilers

Intel(R) Composer XE 2013 for Linux\* OS

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For the MPI Performance Snapshot system requirements, see the MPI Performance Snapshot User's Guide.

## ----- Technical Support -----

Your feedback is very important to us. To receive technical support, you need to be registered for an Intel(R) Premier Customer Support account on our secure web site. You can use your Intel(R) Premier Customer Support account for the Intel(R) Trace Analyzer and Collector to file issues/comments and recommendations for the product.

This package is supported through the Intel(R) Premier Customer Support.

Direct customer support requests at:

<https://premier.intel.com>

General information on the Intel(R) Software Development Products support offerings may be obtained at:

<http://www.intel.com/software/products/support>

Intel(R) Trace Analyzer and Collector home page can be found at:

<http://software.intel.com/en-us/intel-trace-analyzer>

Intel(R) Trace Analyzer and Collector support web site,

<http://www.intel.com/software/products/support/itac> provides top technical issues, frequently asked questions, product documentation, and product errata.

Requests for licenses can be directed to the Intel(R) Software Development Products Registration Center at:

<http://www.intel.com/software/products/registrationcenter>

Before submitting a support issue, see the Intel(R) Trace Analyzer and Collector Getting Started Page for details on post-install testing to ensure that basic facilities are working.

When submitting a support issue to the Intel(R) Premier Customer Support, provide specific details of your problem, including:

- Intel(R) Trace Analyzer and Collector package name and version information
- Host architecture (for example, Intel(R) 64 architecture)



- Compiler(s) and versions - Operating system(s) and versions
- Specifics on how to reproduce the problem. Include makefiles, command lines, small test cases, and build instructions.

You can obtain version information for the Intel(R) Trace Analyzer and Collector package in the file itacsupport.txt.

### Submitting Issues

- Go to <https://premier.intel.com>
- Log in to the site. Note that your username and password are case-sensitive.
- Click on the "Submit Issue" link in the left navigation bar.
- Choose "Development Environment (tools,SDV,EAP)" from the "Product Type" drop-down list. If this is a software or license-related issue, choose the "Intel(R) Trace Analyzer and Collector, Linux\*" option from the "Product Name" drop-down list.
- Enter your question and complete the fields in the windows that follow to successfully submit the issue.

Note: Notify your support representative before submitting source code where access needs to be restricted to certain countries to determine if this request can be accommodated.

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### Copyright and Licenses

  
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While all files shipped with the Intel(R) Trace Analyzer and Collector package are covered under the Intel EULA, the following libraries are also distributed under the GNU Lesser General Public License (LGPL): Qt, libdwarf and libelf. Additionally, the Qt library is dependent on the following third party software: CLucene, WebKit, Phonon distributed under LGPL, and OpenSSL distributed under the BSD License.

Note that when linking your MPI application with the tool, you implicitly link with the LGPL libraries libdwarf.a and libdwarf.so. Linkage can occur either statically (e.g. libdwarf.a) or dynamically (e.g. libdwarf.so) via the -trace option for the Intel(R) MPI Library compiler wrappers (e.g. mpiicc). Be aware of the licensing implications of linking these libraries in your application prior to distribution.

See the information below for additional licenses of the following third party tools used within the Intel(R) Trace Analyzer and Collector:  
BOOST\*, PAPI, ITT API, Performance Monitor.

#### BOOST\*

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Boost Software License - Version 1.0 - August 17th, 2003

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PAPI

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ITT API

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Performance Monitor

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