
Intel(R) Trace Analyzer and Collector 2017 Update 3 for Linux* OS
Release Notes

Overview

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 macOS*. 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.

What's New

Below is a list of changes for each Intel(R) Trace Analyzer and Collector release. For more details, refer to the product documentation.

Intel(R) Trace Analyzer and Collector 2017 Update 3:
- Bug fixes.

Intel(R) Trace Analyzer and Collector 2017 Update 2:
- Enhancements of function color selection on timelines.
- 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 2017 Update 1:
- Introduced mouse wheel zooming support for timelines.
- Deprecated support for the ITF format.
- 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 2017:
- Introduced an OTF2 to STF converter otf2-to-stf (preview feature).
- Introduced a new library for collecting MPI load imbalance (libVTim). See the Intel Trace Collector User and Reference Guide for details.
- Introduced a new API function VT_registerprefixed.
- Custom plug-in framework is now removed.
- All product samples are moved online to: https://software.intel.com/en-us/product-code-samples
- Bug fixes.

- 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 9.1 Update 2:

- Introduced an interoperability feature with Intel(R) Advisor XE. See the Intel Trace Analyzer User and Reference Guide for details.
- 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 9.1 Update 1:

- Changes in the named-user licensing scheme. See 'Installing the License' below for details.
- Minor improvements and bug-fixes.
- 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 9.1:

- Installation directory structure changes. See README for details.
- Minor improvements and bug-fixes.
- 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 3:

- Support for OpenMP* regions
- A few bug-fixes
- 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:

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

Intel(R) Trace Analyzer and Collector 9.0 Update 1:

- Updated directory structure: added symbolic links. See README.txt for more details.
- 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.
- A few bug-fixes

Intel(R) Trace Analyzer and Collector 9.0:

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

Intel(R) Trace Analyzer and Collector 8.1 Update 4:
- Improved raw data compression
- New online documentation format
- A few bug-fixes

Intel(R) Trace Analyzer and Collector 8.1 Update 3:
- New Trace Map
- All timeline settings in the Preferences dialog box
- Context-sensitive help
- A few bug-fixes

Intel(R) Trace Analyzer and Collector 8.1 Update 2:
- Graphical User Interface (GUI) install capability
- New toolbar
- Event Timeline settings in the Preferences dialog box
- New icons in the menu
- A few bug-fixes

Intel(R) Trace Analyzer and Collector 8.1 Update 1:
- Welcome Page functionality
- New Preferences dialog
- Added cache creation progress bar
- Visual appearance enhancement
- Improved stability
- MPI_Pcontrol support

Intel(R) Trace Analyzer and Collector 8.1:
- New interactive help system with support for non-ASCII installation path
- New documentation in the HTML format
- Intel(R) Composer XE 2013 support

The Intel(R) Trace Analyzer and Collector 8.0 Update 3:
- File descriptor virtualization
- Experimental scalable tracefile format
- Advanced aggregation
- Seek and jump function
- Intel(R) Composer XE 2011 Update 6 support

The Intel(R) Trace Analyzer and Collector 8.0 Update 2:
- Improved MPI correctness checking trace file creation
- Fixes to the cache creation process in CLI mode
- Fixes to the trace merging function
- Intel(R) Composer XE 2011 Update 4 support

The Intel(R) Trace Analyzer and Collector 8.0 Update 1:
- Reducing the time spent in application code through merge separation
- A decrease in trace load time due to the introduction of intermediate (summary) data reads during startup
- Integration of a new installer technology plus the introduction of a new Intel(R) Trace Analyzer FLEXlm* module
- Intel(R) Composer XE 12.0 Beta support

The Intel(R) Trace Analyzer and Collector 8.0:
- Application Imbalance diagram for simplified application analysis
- Addition of an Ideal Interconnect Simulator (IIS) to understand application balance
- Custom Plug-in Framework (CPF) to simulate application behavior over different interconnects
- Intel(R) Trace Analyzer Projects to save working environment

Key Features

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 macOS*
- 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

Product Contents

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_User_and_Reference_Guide.pdf includes a
tutorial
introduction for the Intel Trace Analyzer and the ITC_User_and_Reference_Guide.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.

Installation

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'.

Installing the License

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.

Starting from the 9.1 Update 1 release the 'named-user' license provisions in the
Intel software EULA (available as 'itacEULA.txt' in <install_dir>/itac/<version>)
changed to only allow the software to be installed on up to three systems,
tracked by the system host ID. In order to install on another system after
you have reached this limit, you will need to release an old system host ID
from the registration system.

Uninstalling Intel(R) Trace Analyzer and Collector

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.

Special Features and Known Issues

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 -lVT $VT_ADD_LIBS" for the compiler wrappers mpicxx and mpiicpc 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 Intel(R) Trace Collector User and Reference Guide 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.

Intel(R) Trace Analyzer and Collector and MPI Performance Snapshot do not support Fortran applications or libraries compiled with the '-nounderscore' option. Only functions with one or two underscores at the end of the name are supported. See details on Fortran naming conventions here:

https://gcc.gnu.org/onlinedocs/gcc-4.9.2/gfortran/Naming-conventions.html

See the User and Reference Guides for details.

System Requirements

Supported Hardware

    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 based on the Intel(R) MIC Architecture

Supported Software

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

    Systems based on the Intel(R) 64 architecture:
      Red Hat* Enterprise Linux* 6.x, 7.x
      Fedora* 23, 24
      CentOS* 6.x, 7.x
      SuSE* Linux Enterprise Server* 11.x, 12.x
      Ubuntu* 14.04, 16.04
      Debian* 7.x, 8.x

    Note: For systems based on the Intel(R) Many Integrated Core Architecture
    (Intel(R) MIC Architecture) you may need to additionally install Intel(R)
    Manycore Platform Software Stack (Intel(R) MPSS). Please, check the
    requirements for your Intel(R) Xeon Phi(TM) Coprocessor(s).

MPI implementations

    Systems based on the Intel(R) 64 architecture:
      Intel(R) MPI Library 4.x
      Intel(R) MPI Library 5.x
      Intel(R) MPI Library 2017

Compilers

    GNU*: C, C++, Fortran 77, Fortran 95 version 4.4 or newer
    Intel(R) C++, Fortran Compiler 15.0 or newer

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.

Disclaimer and Legal Information

Optimization Notice

Intel's compilers may or may not optimize to the same degree for non-Intel microprocessors for optimizations that are not unique to Intel microprocessors. These optimizations include SSE2, SSE3, and SSSE3 instruction sets and other optimizations. Intel does not guarantee the availability, functionality, or effectiveness of any optimization on microprocessors not manufactured by Intel. Microprocessor-dependent optimizations in this product are intended for use with Intel microprocessors. Certain optimizations not specific to Intel microarchitecture are reserved for Intel microprocessors. Please refer to the applicable product User and Reference Guides for more information regarding the specific instruction sets covered by this notice.

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