
Intel(R) Trace Analyzer and Collector 8.1 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 binary instrumentation and 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. The tool is available on Linux* OS and Microsoft* Windows* OS.

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

What's New

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):

- Usability improvements
    - o Improved raw data compression
    - o Experimental TIME-WINDOWS support
    - o New online documentation format
    - o A few bug-fixes

32 Bit Support of Intel(R) MPI Library & Intel(R) Trace Analyzer and Collector:
Inclusion of 32-bit binaries in the Intel(R) MPI Library and Intel(R) Trace Analyzer
and Collector products is being deprecated. If 32-bit support is required,
we advise that you remain on Intel(R) MPI Library version 4.1 Updates and Intel(R) Trace
Analyzer and Collector version 8.1 Updates, which continue to include 32-bit binaries.
The Intel(R) MPI Library 5.0 Beta and Intel(R) Trace Analyzer and Collector 9.0 Beta
releases will not include 32-bit binaries. Many developers have already migrated to
64-bit implementations of both their applications and of Intel libraries and tools.
If you have concerns about this deprecation, please send us feedback by submitting
an issue at the Intel(R) Premier Customer Support site (http://premier.intel.com) as
soon as possible with your contact information.

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):

- Usability improvements
    - 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):

- Usability improvements
    - 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):

- Usability improvements
    - 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):

- Usability improvements
    - o New interactive help system with support for non-ASCII installation path
    - o New documentation in the HTML format
- Extended interoperability
    - 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):

- Usability improvements
    - o File descriptor virtualization
    - o Experimental scalable tracefile format
    - o Advanced aggregation
    - o Seek and jump function

- Extended interoperability
    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):

- Usability improvements
    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
- Extended interoperability
    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):

- Higher scalability:
    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
- Greater usability:
    o Integration of a new installer technology plus the introduction of a new Intel(R) Trace Analyzer FLEXlm* module
- More support:
    o Intel(R) Composer XE 12.0 Beta

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):

- 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 and Microsoft* Windows* OS
- 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
- Binary instrumentation on the IA-32 and Intel(R) 64 architectures
- 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

Documentation for the Intel(R) Trace Analyzer and Collector can be found at
<installation_directory>/doc. The ITA_Reference_Guide.pdf includes a tutorial
introduction for the Intel Trace Analyzer and the ITC_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 ftp://ftp.ikn.intel.com/pub/opensource.

Installation

Linux* Operating Systems:

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'.

Microsoft* Windows* Operating Systems:

To install the Intel(R) Trace Analyzer and Collector, double-click the installer
file setup.exe and follow the instructions given during the installation. You
will be asked for the location of your license file and for components to be
installed. For your convenience, the installer also offers you to register the
Trace Analyzer with trace files created by the Intel Trace Collector (*.stf).

After installation, read
'<installation_directory>/doc/ITC_Reference_Guide.pdf' and
'<installation_directory>/doc/ITA_Reference_Guide.pdf'.

Before using the Intel Trace Collector, you should source
<installation_directory>/bin/itacvars.bat to set the appropriate environment
variables for smooth functioning of the software.

You can invoke Intel Trace Analyzer through its entry in the Start Menu, by
double-clicking '<installation_directory>/bin/traceanalyzer.exe', or by
executing it from a command shell. If you have registered, double-clicking
tracefiles (*.stf) opens them with the Intel Trace Analyzer.

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.

Uninstalling the Intel Trace Analyzer

Linux* Operating Systems:

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

Microsoft* Windows* Operating Systems:

Uninstalling the Intel Trace Analyzer and Collector is done in the usual way
through the Start->Settings->Control Panel->Add or Remove Programs menu
selection. Choose the Intel Trace Analyzer and Collector and select Remove.

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

On some Linux* distributions (for example, Ubuntu* 12.04), Intel(R) Trace Analyzer
may not work for the non-root user due to security limitations. The workaround is to enable
ptrace for non-root users writing 0 into the /proc/sys/kernel/yama/ptrace_scope file.

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

itcpin utility is not supported for Linux kernel* version 3.x.

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.

The Intel Trace Collector for Microsoft* Windows* OS has the following

limitations compared to the Version for Linux* OS:
- no distributed memory checking
- itcpin is not supported if the McAfee Host Intrusion Prevention* antivirus
  software is active

See the Reference Guides for details.

System Requirements

Supported Hardware

Systems based on Genuine IA-32 processors:
A system based on the Intel(R) Pentium(R) 4 processor or higher
Intel(R) Core(TM) i7 processor recommended
1 GB of RAM per core
2 GB of RAM per core recommended
1 GB of free hard disk space

Systems based on Genuine Intel(R) 64 processors:
Intel(R) Core(TM) processor family or higher
Intel(R) Xeon(R) 5500 processor series 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

Operating Systems

Systems based on the IA-32 architecture:
Red Hat* Enterprise Linux* 5,
Red Hat* Enterprise Linux* 6,
SuSE* Linux Enterprise Server* 11

Systems based on the Intel(R) 64 architecture:
Red Hat* Enterprise Linux* 5,
Red Hat* Enterprise Linux* 6,
Fedora* 17
CentOS* 6.0,
SuSE* Linux Enterprise Server* 11,
openSuSE* Linux* 11.4
Asianux* Server 3
Ubuntu* 12.04
Debian* 6
Scientific Linux* 6.1

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 IA-32 or Intel(R) 64 architectures:
Intel(R) MPI Library 3.x
Intel(R) MPI Library 4.x

Compilers

Intel(R) Composer XE 2013 for Linux* OS

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 Guide for details on post-install testing to
ensure that basic facilities are working.

When submitting a support issue to the Intel(R) Premier Support, provide
specific details of your problem, including:
- Intel(R) Trace Analyzer and Collector package name and version
  information
- Host architecture (for example, IA-32 or 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.

Contact your local Intel sales office or your distributor to obtain the latest specifications and before placing your product order.
Copies of documents which have an order number and are referenced in this document, or other Intel literature, may be obtained by calling 1-800-548-4725, or go to: http://www.intel.com/design/literature.htm

MPEG-1, MPEG-2, MPEG-4, H.261, H.263, H.264, MP3, DV, VC-1, MJPEG, AC3, AAC, G.711, G.722, G.722.1, G.722.2, AMRWB, Extended AMRWB (AMRWB+), G.167, G.168, G.169, G.723.1, G.726, G.728, G.729, G.729.1, GSM AMR, GSM FR are international standards promoted by ISO, IEC, ITU, ETSI, 3GPP and other organizations. Implementations of these standards, or the standard enabled platforms may require licenses from various entities, including Intel Corporation.

BlueMoon, BunnyPeople, Celeron, Celeron Inside, Centrino, Centrino Inside, Cilk, Core Inside, E-GOLD, Flexpipe, i960, Intel, the Intel logo, Intel AppUp, Intel Atom, Intel Atom Inside, Intel Core, Intel Inside, Intel Insider, the Intel Inside logo, Intel NetBurst, Intel NetMerge, Intel NetStructure, Intel SingleDriver, Intel SpeedStep, Intel Sponsors of Tomorrow., the Intel Sponsors of Tomorrow. logo, Intel StrataFlash, Intel vPro, Intel XScale, InTru, the InTru logo, the InTru Inside logo, InTru soundmark, Itanium, Itanium Inside, MCS, MMX, Moblin, Pentium, Pentium Inside, Puma, skoool, the skoool logo, SMARTi, Sound Mark, Stay With It, The Creators Project, The Journey Inside, Thunderbolt, Ultrabook, vPro Inside, VTune, Xeon, Xeon Inside, X-GOLD, XMM, X-PMU and XPOSYS 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.

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.

Notice revision #20110804