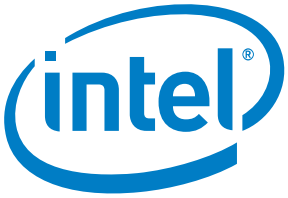


Intel® System Debugger 2017 for System Trace

Release Notes

8 May 2017

Contents:

1 Introduction

This document covers the Intel® System Debugger 2017 for System Trace components and provides release specifics and information on

- new features/bug fixes
- known issues
- where to find related documentation
- system requirements
- legal information

2 New in This Release / Bug Fixes

This section lists new features of the current release of the Intel® System Debugger 2017 for System Trace. The sub-chapter History will provide new features of previous releases.

New Features

- Add support for the new OpenIPC API.
- Timeline View: Add Context Menu for better accessibility. The menu contains items available in the editor toolbar.
- Timeline View: The timeline view height axis is reduced to save vertical space. Keyboard shortcuts are added to all the commands available in the menu. A new command – “Suspended Details” – is added.
- Message Router: Watchdog for Intel Trace Hub Server has been added. Heartbeat mechanism has been added between UI and the native side. This was done following RFC6455 when the client sends PING message (0x09) and the server responds with PONG message (0x0A).

Bug Fixes

- Fixed missing mnemonics on XML serialization, the missing mnemonics causing a delay in decode certain formats.
- Fixed an issue related to ignoring the user extension destination. The collateral installer was ignoring the destination folder setting from the manifest.

3 Change History

This section provides a history of bug fixes for the previous releases.

Update 1716

New Features

- Add support for the new OpenIPC API.
- Timeline View: Add Context Menu for better accessibility. The menu contains items available in the editor toolbar.
- Timeline View: The timeline view height axis is reduced to save vertical space. Keyboard shortcuts are added to all the commands available in the menu. A new command – “Suspended Details” – is added.
- Message Router: Watchdog for Intel Trace Hub Server has been added. Heartbeat mechanism has been added between UI and the native side. This was done following RFC6455 when the client sends PING message (0x09) and the server responds with PONG message (0x0A).

Bug Fixes

- Fixed missing mnemonics on XML serialization, the missing mnemonics causing a delay in decode certain formats.
- Fixed an issue related to ignoring the user extension destination. The collateral installer was ignoring the destination folder setting from the manifest.

Update 1633

New Features

- New **TRace Analysis and Mining** (TRAM) feature
- Rework of search and filter user interface
- Performance improvements for search and filtering

Bug Fixes

- Fixed an issue with USB3 trace streaming that could cause trace data loss under certain circumstances

Update 1629

New Features

- **Architectural Event Traces (AET)** support added.
- **CSME verbosity configuration**. In addition to enable/disable CSME traces in the configuration editor, CSME tracing verbosity can be selected. CSME tracing can be set to “Verbose” or “Normal”.
- **Support Eclipse* Neon (4.6)**. Intel(R) System Studio 2016 now supports integrating the System Trace Eclipse* features/views into Eclipse* Neon.
- New Buttons for de-/selecting all trace sources in the Event Distribution View (EDV).

Bug Fixes

- Fix legal name mentions in user documentation and GUI.
- Adapt IPC API port name lookup to newer IPC API versions.
- Fix AET decoder crash after multiple start/stop capture cycles.

- Fix parameter --root-path in Trace Decode Engine (TDE) frontend.

Update 1625

New Features

- Canceling of start and stop the target configuration is now possible using the GUI

Bug Fixes

- Fix for "Welcome to System Trace Dialog" not appearing when switching to the System Trace perspective in Eclipse*.
- Fix to work around HW issue in Intel Trace Hub frequency
- Fix legal names in user documentation and GUI

Update 1617

New Features

- New column picker location: To ease the access to message view columns, the column picker was moved from the TMV Configure view to the Message View toolbar

  Clicking this button will open a dialog where Message View columns can be selected
- Column presets: The Message View toolbar contains a new functionality to use and create column presets. The user can select the most interesting columns for the trace usecase and save/export this column layout for easy access on subsequent trace sessions. The System Trace Tool comes already with some predefined use cases supporting general decode and RAW decode.

  The usage of the new feature is described in the System Trace User Guide chapter Basic Trace Analysis: Message View Column Presets.

Bug Fixes

- Suppressed SVEN messages, e.g. due to non-matching catalog, will now be reported in the Message View
- Improve error message of File Reader decoder on empty trace
- Enabled cancel button during memory extraction in the trace to memory use-case
- Improve target access stability
- Fix configuration server crash when running BIOS self-test
- Fix for unintentional change of trace profile with "CTRL + s" shortcut.
- Fix for wrong blue background color in several system trace views
- Fix crash on start capture without open configuration editor
- Event Distribution View: Fix default zoom range not loaded in some scenarios
- Event Distribution View: Fix flickering histogram depending on screen resolution

Update 1609

New Features

- Important: Please create a new workspace when using U1609 or if you want to use an existing workspace, please click the reset perspective button. Some UI plugins got renamed, which might cause issues with workspaces/projects created with earlier versions.

Bug Fixes

- Fix for wrong editor background colors in Eclipse* Luna
- Fix for empty message view if only one trace is present
- Fix for flickering histogram on some screen resolutions
- Fix crash in IPC connector on error reporting
- Selftest feature: Fix server crash when running BIOS self-test
- Fix for unintentional change of trace profile with "CTRL + s" shortcut

Update 1605

New Features

- Stopping a trace to memory session will show a progress bar, which indicates the remaining time until the download is completed.
- XDP3 support for SKL-PCH trace to memory
    - Live-streaming of trace data is currently not supported over an XDP3 connection. Only trace-to-memory use-cases (either to Tracehub memory or to system DRAM) are possible.

Bug Fixes

- Fix handling of decoder-instance-parameters
- Allow Mipi D64TS as SVEN protocol record start
- Fix for Persistent Page Up Down Navigation
- Improved memory download with wrapping enabled
- Fix for decoding linked files containing spaces in the path
- Fix for sporadic error message showing up in Eclipse* console when switching target
  `[ERROR] Error stopping target connection server. Error returned: process has not exited`
- Rules will be saved in workspace when Eclipse* exits. The rules will be restored during Eclipse* restart.
- Fix crash on stop capture
- Fixed errors resulting from renaming capture files

Update 1545

New Features

- Event Distribution View:
    - Timestamp offset error in live streaming mode fixed
    - Lag Detection in Event Distribution View (switch to lower resolution if computation takes too long) added
- ETW:
    - ETW trace enabling synchronized with BIOS trace enabling at start.
    - Improvement to be versioning aware of driver side version (driver was recently updated, user may not notice).

Bug Fixes

- Rules creation/drop-down boxes in Rules view improved
- STT Marker behavior (internally removes a hidden column) improved
- Fix for TDE parameter edit (permits editing Decode-As parameters properly)
- Fix for double-clicking on current capture's session (would close while capturing)
- Renaming of trace capture files improved
- TraceHubServer startup time improved
- TMV Configurer expansion state after Apply button is pressed improved
- PVSS/silicon-product aware columns in TMV Configurer & Viewer added
- Termination timeout removed when stopping a trace
- Capture file created by MIPI decoder (permits MIPI decoder-based filtering
- eventually)
- Time synchronization calculation issue fixed

Update 1541

New Features

- New feature: Event Distribution View
    - The event distribution view visualizes the distribution of messages over time to provide a better overview of the trace and assist users in identifying interesting regions, which can serve as starting point for trace analysis. The event distribution view usage is described in the system trace user guide, chapter 7.2.
- New ETW target driver available.

Bug Fixes

- Fix for misleading console output message in GUI
- Remove redundant commands in GUI
- Fix for updating event number in Import TDE Dialog
- Save/restore additional GUI elements in tracehub config
- Reset editor input after renaming trace config file
- Bug fix for double click message view opening

Update 1537

New Features

- Update to Intel® Direct Connect Interface (Intel® DCI) driver 1.7.1.0
- UI improvements
    - Improved Welcome to System Trace wizard
    - Wait for configuration server before creating a configuration file
    - Remove sorting feature when pressing the column header in the message view.
    - Sorting is not supported yet.
    - Added help to the several wizard dialogs.

Important note: It is recommended to restart the machine after the installation as the Intel® DCI Driver has changed with this package.

Update 1533

New Features

- Support for SPT-LP C1 and SPT-H D1 steppings
- Renamed the System Trace Getting Started guide to System Trace User Guide <INSTALLDIR>\documentation_2017\en\debugger\iss2017\system_debugger\system_trace\system-trace-user-guide.pdf)

Bug Fixes

- Conform exported trace message to CSV standard
- Fix message export for error type messages
- Disable target connection button during target connection process
- Disable disconnect from target while live trace is active
- Set focus to the search text field after opening search dialog
- Close editor instances if opened multiple times
- Open the full decode view even when message view is closed
- Fix configuration file loader when Trace Project closed. When clicking "Start
- Trace", the user will be guided when there is no active trace configuration or now system trace project.
- Do not show "Welcome to System Trace" dialog if trace project already exists.
- Don't persist transient changes
- Validate selected use cases to check if they still exist (workspace backward compatibility)

Update 1529

New Features

- New Intel(R) DCI driver, version: 1.6.0.0
- PMC trace source is now available. Configuration, tracing and viewing PMC traces is now supported. A new column provider in the Trace Message View was added to show PMC specific columns.

Bug Fixes

- Configuration panel: Start Trace button is now enabled by default. In case Start Trace is selected and no configuration is opened a dialog will popup asking the user to select a trace configuration file.
- “Welcome to System Trace” dialog: This dialog does no longer show up by default when switching to the System Trace perspective, if a System Trace project is already in the active workspace. If there is no valid System Trace project the dialog pops up to guide the user through the first basic steps.
- File decode while streaming: As decoding an imported trace file is not possible while live streaming from a target, the respective file decode menu entries are now disabled during a live tracing session.

Update 1525

New Features

- New Intel(R) DCI driver, version 1.5.0.0

Bug Fixes

- Database improvements for filter & search performance

- Target state display improvements for reset & power-off state of the target
- Session import/export improvements & fixes
- Renaming of sessions and trace configurations improved
- Improved IPC read speed

Update 1521

New Features

- Support for latest Eclipse* (Luna) and Java* (1.8) versions.
- Event Traces for Windows* (ETW)
    - ETW is now supported by the System Trace Tool. A new panel in the configuration area provides the necessary configuration options for the target system ETW capabilities. Detailed setup is described in the getting started guide.

Bug Fixes

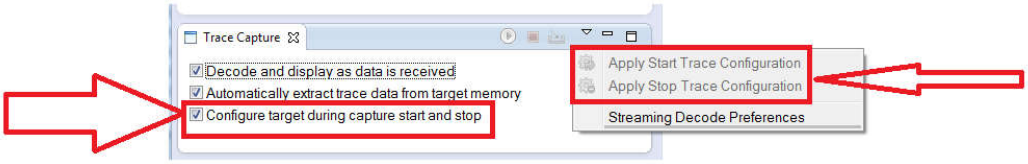
- Intel(R) DAL console output is now visible in Eclipse* console. This feature dumps the output of the Intel(R) DAL console directly to the user's Eclipse* console, which gives the user a better status update about what is going on during connect and configuration.
- Improved icons and behavior of several configuration related buttons.
- Added user friendly target connection names to the System Trace Tool connection dialog.
- Fixed several UI glitches, e.g. wrong sizing of the Trace Capture view and introduced scrollbars if size doesn’t fit the user’s screen.

Update 1517

New Features

- LMDB: Improved performance of database backend speeds up the decoding process or large traces significantly.
- A CSME SVEN catalog. By default only CSME messages that map to an entry in the catalog file will be shown in System Trace Tool. This behavior can be switched off by changing a configuration parameter in the CSME catalog. The catalog can be found in the installation directory:
- <INSTALLDIR>\debugger\system_trace\targets\all\all\all\all\decoders\sven\data\config\CSME_decoder.xml
  To switch off the described behavior, change ***supressRawEvents*** to ***false***. This will show all CSME messages again.
- ImageAnalyzer: in the CSME FW, every fatal (critical) FW print, being sent via NPK to ITH like all FW prints, will also be stored in the SPI flash, if configured. These FW prints can now be decoded using the system trace tools.
- Start Trace without configuration
    - A new check-box option called "Configure target during capture start and stop" got added to the Trace capture view. Un-checking this option skips all configuration steps done by the trace viewer. This option got added to support capture use cases where trace sources are already

configured by someone else and the Viewer shall not override these.



- **Note:** An open trace configuration file is still needed for starting a capture even when this option is unchecked. The trace viewer needs the information also for the decode settings. It is the user's responsibility to ensure that the used configuration matches with the hardware settings.
- Additionally, a start/stop configuration option got added to the capture view menu. These allow to apply start/stop configuration commands at any time, independent of a running or not running capture

Bug Fixes

- Fixed sporadic System Trace Tool crash during decode
- Added a job monitor that uses the decode engine status updates to compute the number of events in the database and show this to the user during live streaming.
- Fixed message view, which sporadically showed only a single entry after an update.
- Eliminated sporadic error messages on Eclipse* console saying that the Engine returned a negative return value.

Update 1513

New Features

- Wizard for creating initial trace project and configuration provides guidance for first-time use
- Support for more SPT silicon steppings using the Closed Chassis Adapter (CCA)

Bug Fixes

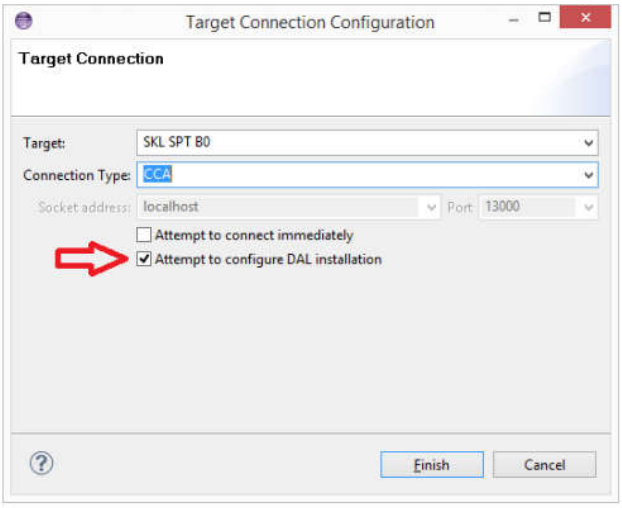
- Several stability improvements

Update 1509

New Features

- Automated Intel® Dfx Abstraction Layer (DAL) connection configuration for Intel® Trace Hub support
  - There now is a check-box in the connection dialog to trigger the Intel® Dfx Abstraction Layer topoconfig.xml and hostconfig.xml file updates to prepare for usage of the Dircet Connect Interface for Intel® Trace Hub connect and data fetching. Clicking Finish in the dialog shown below will kill MasterFrame (if running) and t hen put the appropriate reference settings in place

depending on what the user has selected:



- Selection for different release stepping's of the Intel® Core™ Processor code-named "Skylake" in the Intel® System Debugger – System Trace connection dialog
- Support for both Closed Chassis Adapter (CCA) for Intel® System Debugger – System Trace

Bug Fixes

- Various connection stability and installer improvements

4 Known Issues

Installation into an user-provided Eclipse

- To install Intel® System Debugger – System Trace into an user-provided Eclipse, the necessary prerequisites must be installed manually by running the following commands on the command-line from within the user-provided Eclipse installation – this requires an Internet connection:

```
eclipsec.exe -nosplash -application org.eclipse.equinox.p2.director -
installIUs org.eclipse.jdt.feature.group -repository
http://download.eclipse.org/releases/mars

eclipsec.exe -nosplash -application org.eclipse.equinox.p2.director -
installIUs org.eclipse.jetty.websocket.api -repository
http://download.eclipse.org/jetty/updates/jetty-bundles-
9.x/9.2.13.v20150730/

eclipsec.exe -nosplash -application org.eclipse.equinox.p2.director -
installIUs org.eclipse.jetty.websocket.client -repository
http://download.eclipse.org/jetty/updates/jetty-bundles-
9.x/9.2.13.v20150730/
```

Issues of Architectural Event Trace (AET)

- Restore of an existing workspace with AET traces in it might lead to an error message in the Message View. Workaround: close and reopen the Message View.
- AET Branch Trace Memory (BTM) enabling will not be disabled on Stop Capture, which will slow down the target system significantly. Workaround: reboot target machine after Stop Capture.
- AET configuration editor requires target connection for proper restore when launching Eclipse* with an existing workspace, which contains AET configurations. Workaround: create a new workspace.
- AET time sync overflows shown in the Message View when activating many AET sources. Workaround: enable only the sources needed for the user's debugging use case.

Event Distribution View not showing all data under certain circumstances

- When doing a target power-off/power-on cycle, the Event Distribution View might only show events after the power on.

Configuration

- **BIOS and CSME checkboxes not fully functional**
  - Some BKC images program the SWDEST registers for BIOS and CSME after a target reset automatically. This causes BIOS and CSME traces to be always switched on regardless of the selection made for the BIOS/CSME configuration checkboxes in the configuration area.
- **PCH Power Management may not be configurable on Intel® 6th Generation Intel® Core Processors (code-named "Skylake") production systems**
  - PCH Power Management may not be configurable on Skylake production systems because of platform settings. During the Intel® Trace Hub configuration the following error message could

appear in the Eclipse* console when trying to enable PCH Power Management on a production system:

```
10:48:55 [WARN ] Unable to halt the processor to configure PMC trace.  PMC trace may not be configured correctly
```

In addition, a warning icon next to the PCH Power Management check-box in the trace configuration editor window is shown to indicate this access problem.

Other

- **Target platform re-connect not reliable**
  - Disconnecting and re-connecting to the target may work unreliable, which causes the capture process not to work.
- **Intel(R) DCI communication instability**
  - Current platforms based on the Intel® processor code-named “Skylake” and A0, A1 and B0 stepping of the chipset code-named “Sunrise Point” suffer from a hardware instability for Intel(R) DCI communication, which impacts the Intel® System Debugger – System Trace
  - To fix Intel(R) DCI communication instabilities please execute the following steps:
    - Close the System Trace Tool.
    - Power-off the target
    - Kill the Intel® Dfx Abstraction Layer (DAL) master frame process (MasterFrame.HostApplication.exe) using the Windows* task manager.
    - Unplug the CCA adapter from the host.
    - Plugin the CCA adapter to the host again.
    - Start the System Trace Tool and follow the connect procedure including powering on the target
- **Previous System Trace feature workspace data not supported**
  - If you used an older version of the Intel® System Studio System Trace feature, the workspace used previously will no longer be usable with the current update. Either delete the previously used workspace (e.g. C:\Users\<name>\workspace) or ensure to use a different workspace together with the System Trace feature.
- **Timeout Messages on Closed Chassis Adapter Firmware Update**
  - if the Intel(R) DFx Abstraction Layer library detects old firmware on the Closed Chassis Adapter, the firmware will be updated automatically during the first connect to the target using the system trace tool. In some cases it can be that the connect procedure runs into a timeout and shows error messages on the Eclipse* console. In this case please do the following:
    1. Close Eclipse*
    2. Unplug the CCA adapter
    3. Kill the Intel(R) DAL MasterFrame process
    4. Plug-in the CCA adapter
    5. Start Eclipse* and follow the connect procedure described in the system trace user guide
- **Ordering of time stamps during live decode and file decode may differ.**
- **Power states problems**

- When the target transitions into a low power state configuration (attempts), starting and stopping trace fails. If attempted, the GUI may fail to detect this and end up in an inconsistent state where no further target interaction is possible.

- **Intel(R) Dfx Abstraction Layer crashes during live streaming**
  - If the target layer crashes during live streaming, System Trace Tool will stay in an undefined state. Please restart System Trace Tool in this case, connect again and continue with live streaming
- **Incorrect target connection status after reset**
  - In some rare cases it may happen that after a target reset the target status shown in the "Target Connection" view is incorrect and still reports that the target is in reset state. In this case please reset the target again, which triggers an update of the target status
- **Trace Viewer may become unresponsive after workspace upgrade**
  - After workspace upgrade you may encounter something like the following error:

    ```
    16:07:36 [ERROR] Cannot send message, target connection server is not
    running.
    16:07:36 [ERROR] Server is unresponsive
    16:07:36 [ERROR] Unable to restore API state. Target may be incompatible. See
    server logfile for details.
    ```

    To overcome the issue, just re-select the current target to perform live trace capture.

Possible access problem reasons and solutions

- **CPU Probe Mode may not be available on the platform.**
  - Possible reason: No CPUs were detected in the tap chain (merge port not implemented?)
    Possible solutions:
    - Check the merged port implementation.
    - Manually configure PCH power management by setting bit 27 of offset 3Ch in the PM MMIO BAR.
  - Possible reasons: The Privacy MSR is not set in IA FW (BIOS)
    Possible solutions:
    - Set the Privacy MSR in the BIOS setup
    - Unlock the platform
    - Manually configure PCH power management by setting bit 27 of offset 3Ch in the PM MMIO BAR.

5 Related Documentation

The following documentation provides more information about the Intel® System Debugger 2017 for System Trace and its features. All documents can be found after a successful installation in `<INSTALLDIR>\IntelSWTools\System Debugger 2017\documentation_2017\en\debugger\iss2017\system_debugger\system_trace`

- **Intel® System Debugger 2017 - System Trace User Guide (system-trace-user-guide.pdf)**
  This document provides a step by step introduction to important system trace features and functionality.

6 Where to Find the Release

If you did not register your debugger during installation, please do so at the Intel® Software Development Products Registration Center. Registration entitles you to free technical support, product updates and upgrades for the duration of the support term.

To submit issues related to this product please visit the Intel® Premier Support webpage and submit issues under the product Intel® System Studio.

Additionally you may submit questions and browse issues in the Intel® System Studio User Forum.

For information about how to find Technical Support, product documentation and samples, please visit http://software.intel.com/en-us/intel-system-studio

7 System Requirements

This chapter describes the minimum requirements.

Host Software Requirements

- Microsoft* Windows* 7, 8.x or 10 (64bit)
- .net Framework 3.5, 4.0 and 4.5

Only when integrating into own Eclipse* IDE:

- Eclipse* 4.4 Luna 64bit C/C++ Edition, Eclipse* 4.5 Mars 64bit C/C++ Edition or Eclipse* 4.6 Neon 64bit C/C++ Edition.
- Java Runtime Environment (JRE) 1.8 (64bit) or higher

Host Hardware Requirements

- Second generation Intel® Core™ i5 processor or Intel® Core™ i7 processor.
- 2GB RAM
- 10GB free disk space for all product features and all architectures
- USB 3.0 host interface

Target System Requirements

The following target systems are supported by Intel® System Debugger 2017 for System Trace:

- Intel(R) 100 Series Chipset, Stepping D1
- 6th Generation Intel(R) Core™ Platform I/O, Stepping C1

Additional Hardware

- **For Sunrisepoint specific target connections**
  In order to connect to a target mentioned above a Intel® SVT Closed Chassis Adapter (CCA) is required. To order the Intel® SVT Closed Chassis Adapter (CCA) device, please go to https://designintools.intel.com/, select the Debug Tools product category and select the Intel® SVT Closed Chassis Adapter. https://designintools.intel.com/product_p/itpxdpsvt.htm

  For assistance with the ordering process or if you have any questions please submit an issue in the Intel® System Studio product of Intel® Premier Support https://premier.intel.com or send an email to IntelSystemStudio@intel.com.

8 Installation Notes

Installation

The Intel® System Debugger 2017 for System Trace component on Windows* is a standalone product, not included in any Intel® System Studio package. Double-click on the downloaded executable installation file w_sys_dbg_2017.x.xxx.exe to begin installation and follow the on-screen instructions.

If you have any doubts about installation requirements, please check the Prerequisites Guide

The default installation directory is %ProgramFiles(x86)%\IntelSWTools\System Debugger 2017

For detailed steps on how to install the product, please refer to the Intel® System Debugger 2017 - System Trace User Guide. See chapter 5 Related Documentation for more information.

Important note: It is recommended to restart the machine after the installation.

Uninstall

To uninstall the product please open the Windows* Control Panel, select Add/Remove Applications (Windows* 7) or Programs and Features (Windows* 8.x and higher) and choose Intel® System Debugger 2017. Click the uninstall button to start the uninstall process. Follow the on-screen instructions.

9 Legal Information

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