

Synopsis

This document describes the Application Trace Logger (ATL) software tool which provides a unified solution for trace capture and visualization in STLinux-based systems. The ATL package contains all of the software components required for trace capture and visualization using the STM-Probe or by writing the trace data to a file in the target filesystem.

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References

1. *Multi-Target Trace API reference manual* (Doc ID 023121)
2. *STM-Probe datasheet* (8282484)
3. *ST Micro Connect 2 datasheet* (7912386)

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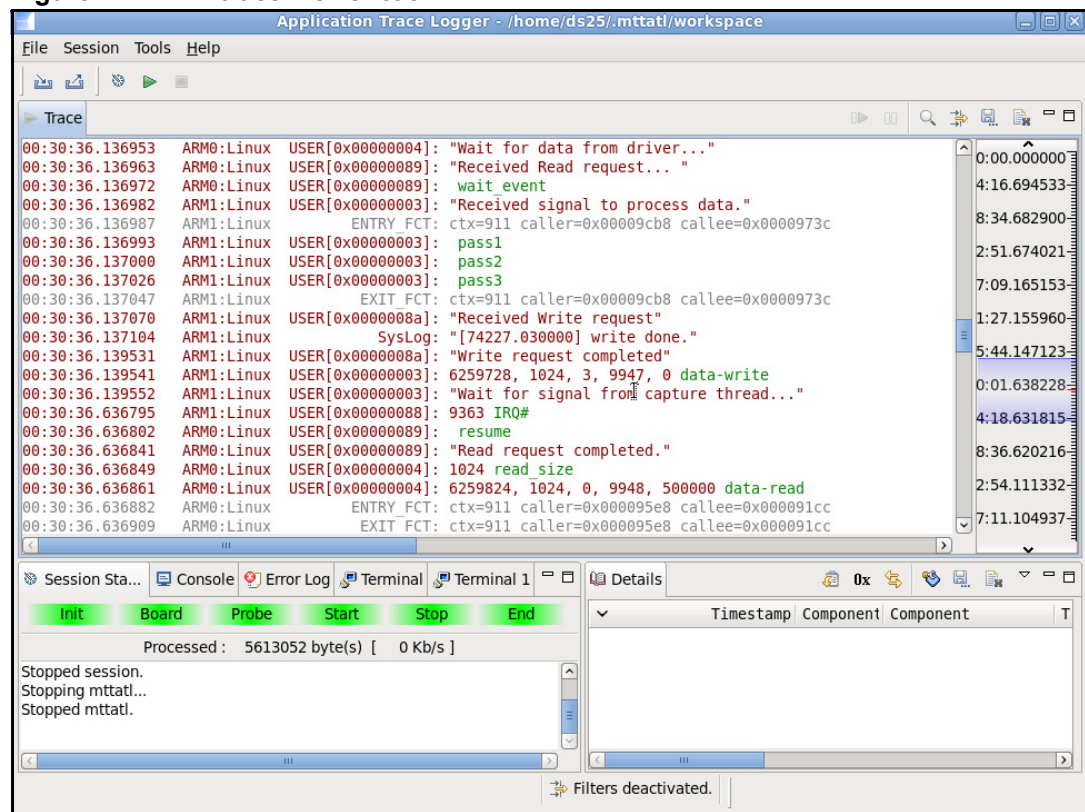
1 Introduction

The Application Trace Logger (ATL) is a unified tool for the capture and visualization of Linux traces. It can be used for capturing traces from Linux User and Kernel space using the SoC System Trace Module (with an STM-Probe) or by writing the trace data to a file in the target filesystem. The data file can be retrieved using NFS over Ethernet or an alternative method, such as USB. The ATL is a single solution covering multiple trace levels, it handles standard `printk`, Multi-Target Trace (MTT) API and Linux KPTrace data using a common reference time frame.

Traces captured using the STM port can consist of data from multiple sources (for example, different cores in the SoC) interleaved in chronological order using timestamp information (available in a future ATL release).

ATL provides a textual window for fast, real-time logging, plus a detailed view of the traces that are selected. Advanced multi-criteria filtering and sorting is available through fully configurable tabs on the selected traces. After the trace data has been captured, further analysis can be performed using a dump to file or database feature. *Figure 1* provides an example of the raw data output and further detail displayed in the ATL trace viewer tool.

Figure 1. ATL trace viewer tool



The ATL can be used with the MTT API which is an application instrumentation library that provides a consistent way to embed instrumentation into a software application, and selectively transmit the data to a remote client for analysis. MTT can be used on multiple cores and operating systems within the SoC simultaneously. (Future releases will be able to deliver Interleaved trace data using STM.) The API is portable and independent of the

underlying transmission mechanisms. See the *Multi-Target Trace API reference manual* [1] for more information on how to use MTT.

The main features of the ATL include:

- live acquisition control and display from:
 - STM-Probe
 - target files
- multiple trace levels:
 - user and kernel space traces
 - redirection of `printk`
 - KPTrace trace
- a trace viewer providing:
 - configuration options
 - a console to show trace flow
 - a table view to show the basic structure
- integration with STWorkbench IDE allowing control of trace and debug in a single environment (coming soon)
- multi-criteria filtering on:
 - core
 - PID/context ID
 - string search, signal name (hint)
 - time span
 - decimal value in payload
 - software/component ID
- import and display of previously captured trace data
- multiple import/export formats:
 - raw binary format
 - KPTrace ASCII
 - trace management database

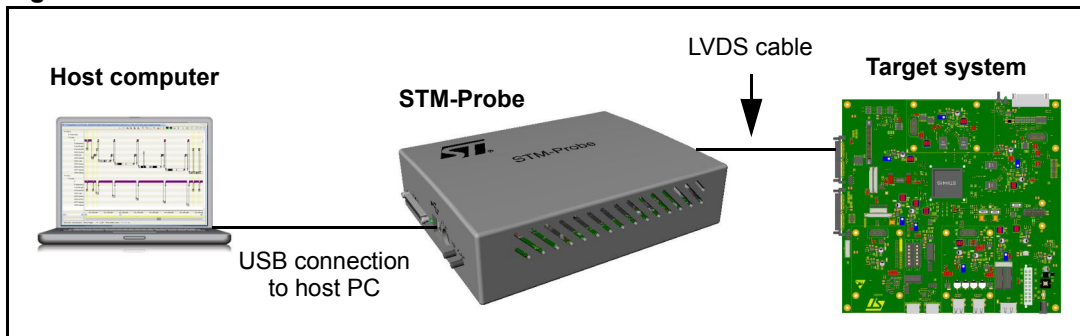
2 Trace capture environment

The ATL software can be used to capture traces through:

- the System Trace Module (STM) on targets which provide this feature
- the target filesystem

When using an STM-Probe device it can be connected to the target system directly in Standalone (USB) mode, as shown in [Figure 2](#). This connection type provides system trace information only. Debug support is not available. All trace data is accessed through USB.

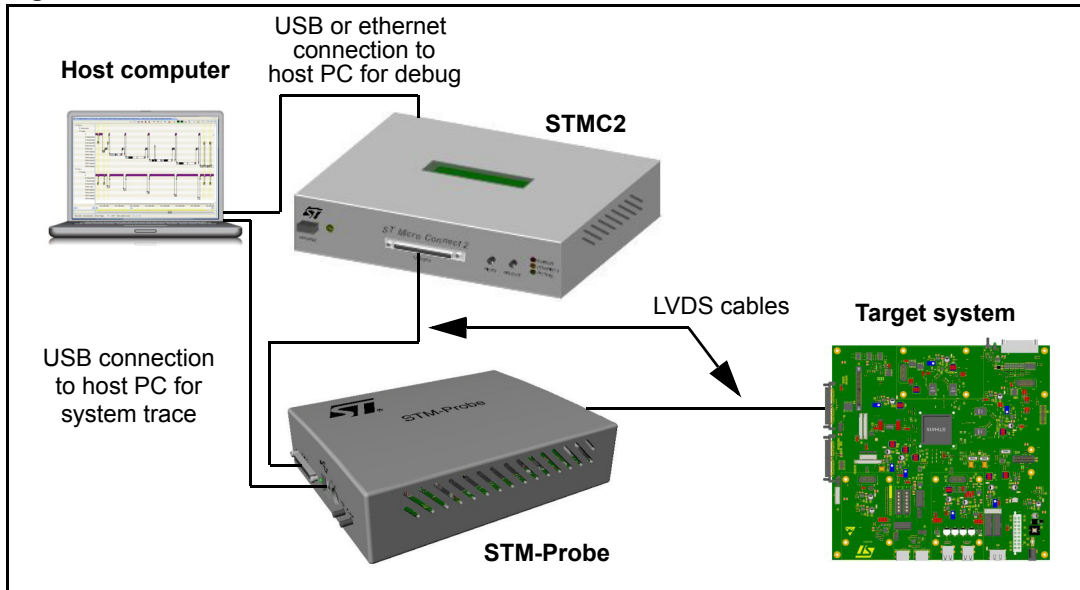
Figure 2. Standalone connection



The STM-Probe can also be used in conjunction with an ST Micro Connect 2 (STMC2) host-target interface (see the *ST Micro Connect 2 datasheet* [3]) in order to provide simultaneous debug and trace connections to the target system. The STM-Probe is connected to the host computer with a USB connection for trace data acquisition. JTAG debug signals are relayed by the STM-Probe between the STMC2 and the target using the STMC-IN connector. No trace data is sent to the STMC2. The STMC2 can be connected to the host computer either with an Ethernet connection or with a separate USB connection.

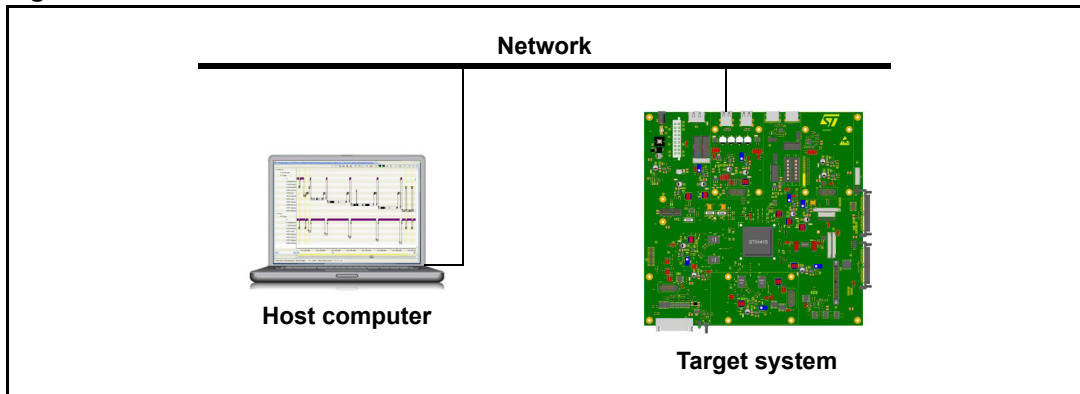
Figure 3 shows an example of this scenario. See the *STM-Probe datasheet* [2] for more information.

Figure 3. STMC2 USB connection to host



For the ATL software to capture trace data to a file only, an ethernet or serial connection (or similar) to the target is required. Figure 4 shows an example of the former.

Figure 4. Ethernet connection



3 Package contents and delivery

The ATL software consists of the components:

- Trace capture software: target and host side backend
- Trace viewer software: host side frontend including standalone trace viewer, command line executables and related libraries
- documentation and examples

Additionally, the features of the standalone trace viewer will be integrated into the STWorkbench for OS21 and STLinux IDE, from R6.3.0 onwards.

The ATL and STWorkbench products are delivered through the STLinux distribution channels. See www.stlinux.com/downloads for more information on how to download and update STLinux packages.

ATL supports the following environments:

Host: Fedora 14, 15, 16-32; 16-64, 17-64.

Target: B2000 and B2020 platforms / STiH415 and STiH416 / STLinux (kernel version 3.4.7 or later) / Software stack SDK2.

4 Revision history

Table 1. Document revision history

Date	Revision	Changes
22-May-2013	1	Initial release.

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