4D Log Analyzer v1.0 Preview

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Table of Contents

Abstract

The 4D Log Analyzer provides a visual performance analysis to help identify problems and areas in which improvements may be needed. Its analysis focuses on the time spent on specific 4D methods and commands execution in stored procedures, triggers or processes. This Technical Notes covers the operation of the 4D Log Analyzer and its basic features.

Introduction

The debug log format has changed since v14 so it is giving more information in a more compactable way. The consequence is that the logs produced by the application are no more human-readable. It is the reason why we needed to develop a log analyzer tool.

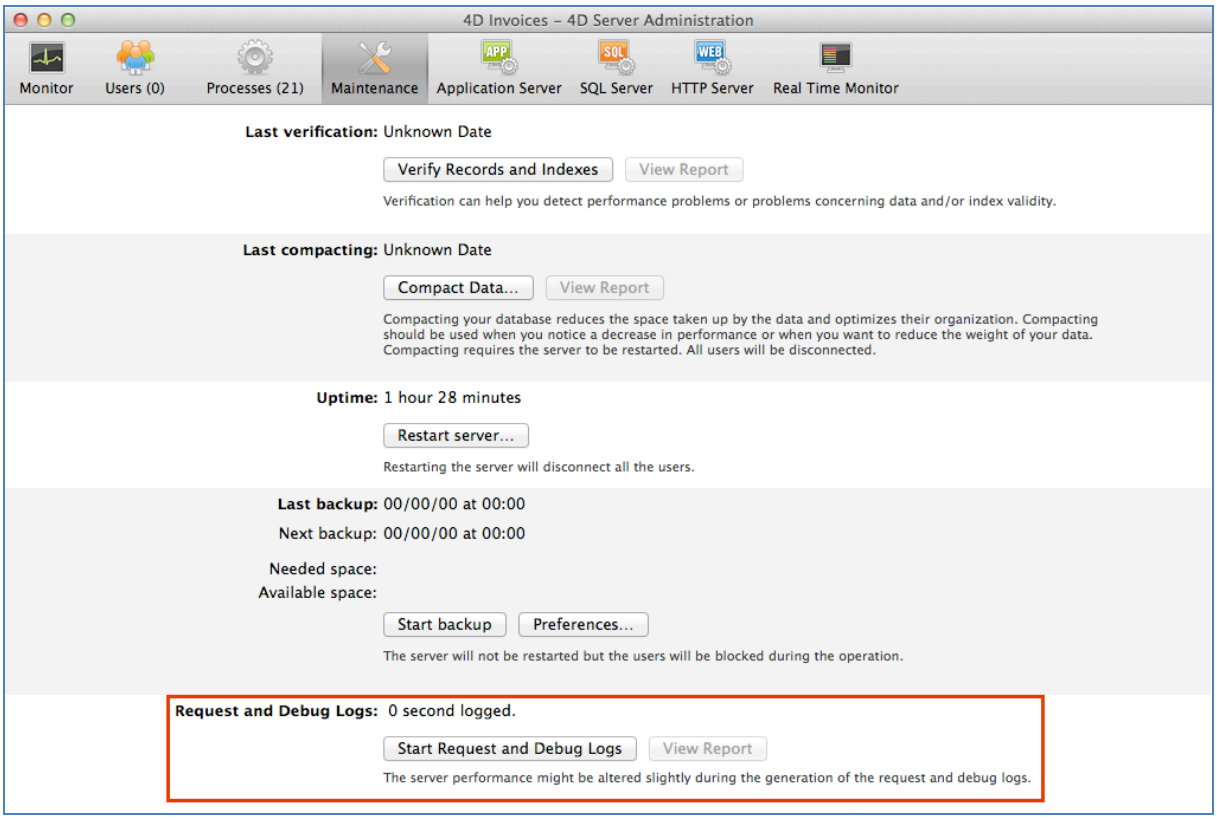
In this document, we explain:

- How to enable logs in your application
- How to import logs in the log analyzer
- How to use the tool and what information can be retrieved

Enable logs in my application

Before starting to use the log analyzer, you need to start by enabling logs to generate logs files that can be analyzed by the tool.

Using 4D Server Administration Window



To activate logs on the Server, go to the 4D Server Administration Window, enter the “Maintenance” tab and click on the "Start Request and Debugs Logs” button.

By programming

Logs can be enabled using the following command:

```
SET DATABASE PARAMETER (34;2+4)
```

Note: - Bit 2 (value 2) requests call parameters to methods and commands.
- Bit 3 (value 4) enables new tabbed format.

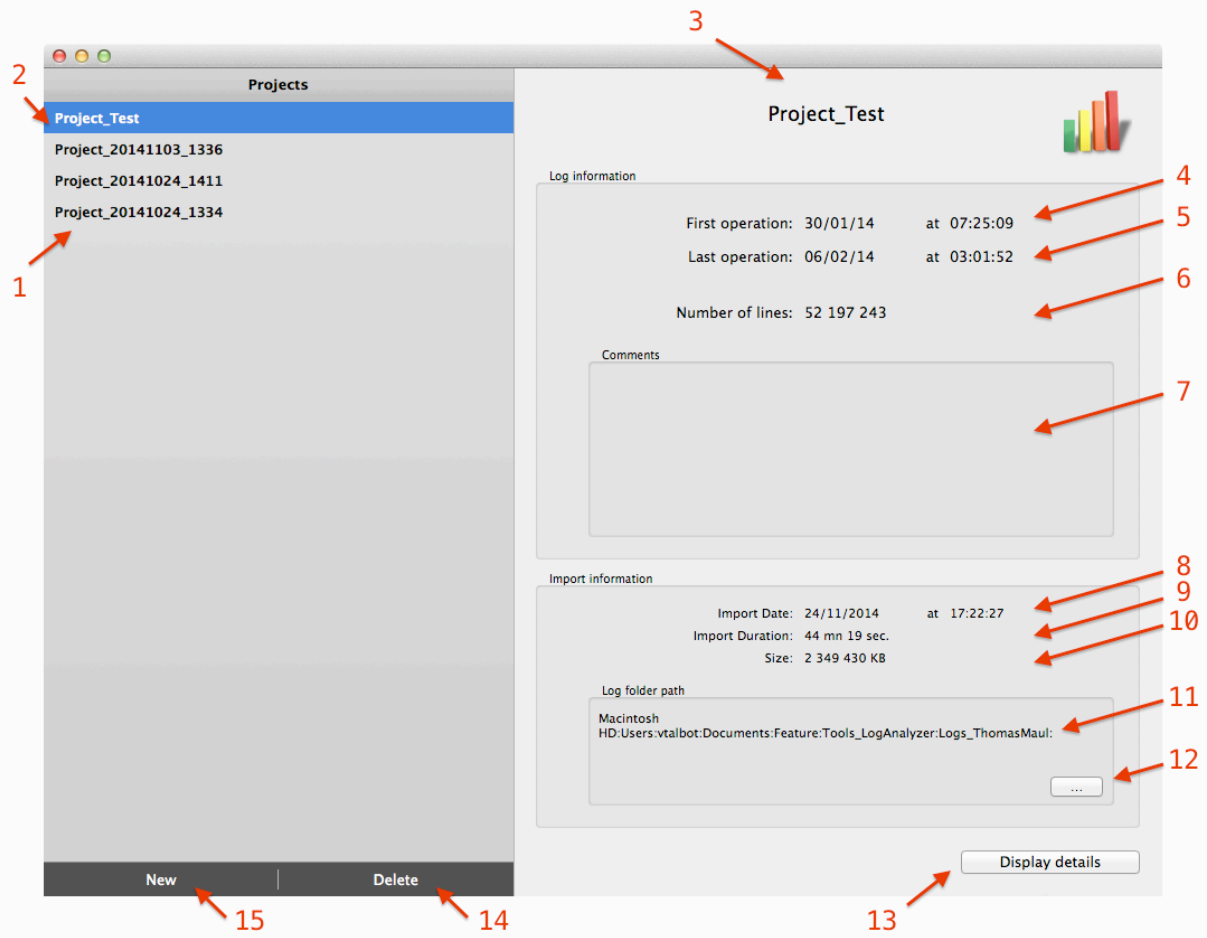
Logs can be disabled using the following command:

```
SET DATABASE PARAMETER (34;0)
```

The logs files are generated in the logs subfolder of the database next to the structure file.

Log analyzer features

Manage Projects



A project is made up of a set of imported logs. To import logs, click on the "New" button (15). Then, select the folder where the logs are stored. Then wait until the log import is complete.

The list of available projects (i.e., already imported) is displayed in the left pane (1).

In the right pane, information about the current project can be found (2):

- Project Name (3)
- Date and time of the first operation (4)
- Date and time of the last operation (5)
- Number of lines (6)
- Comments (7)
- Import Date & time (8)

- Import Duration (9)
- Size of log files (10)
- Log folder path (11)
- "..." Button to open log folder (12)

In case the folder containing logs has been moved, the path can be modified using the "…" button (12).

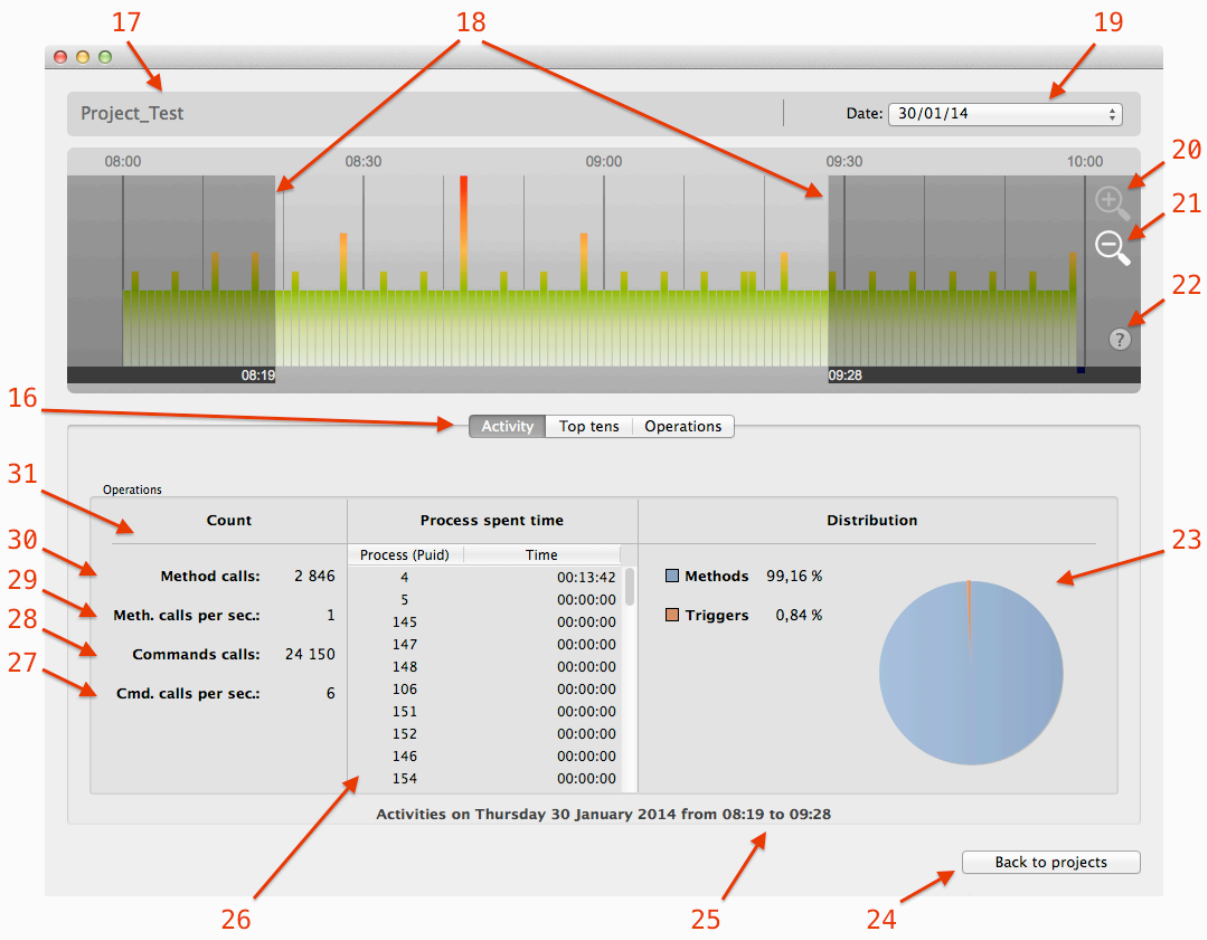
For example, you can send your .4DD and compressed log files to tech support. The tech support employee can just open the 4DD file and choose the folder of log files using the "…" button. He doesn't have to import again the logs.

To delete a project, select the project in the list (1). Then, click on "Delete" button (14).

Detailed Report

To start analyzing your logs and the detailed report, first select a project in the list (2) then click on "Display details" button (13).

In the detailed report dialog, the project name (17) and the date of the log (19) are displayed in the top area.

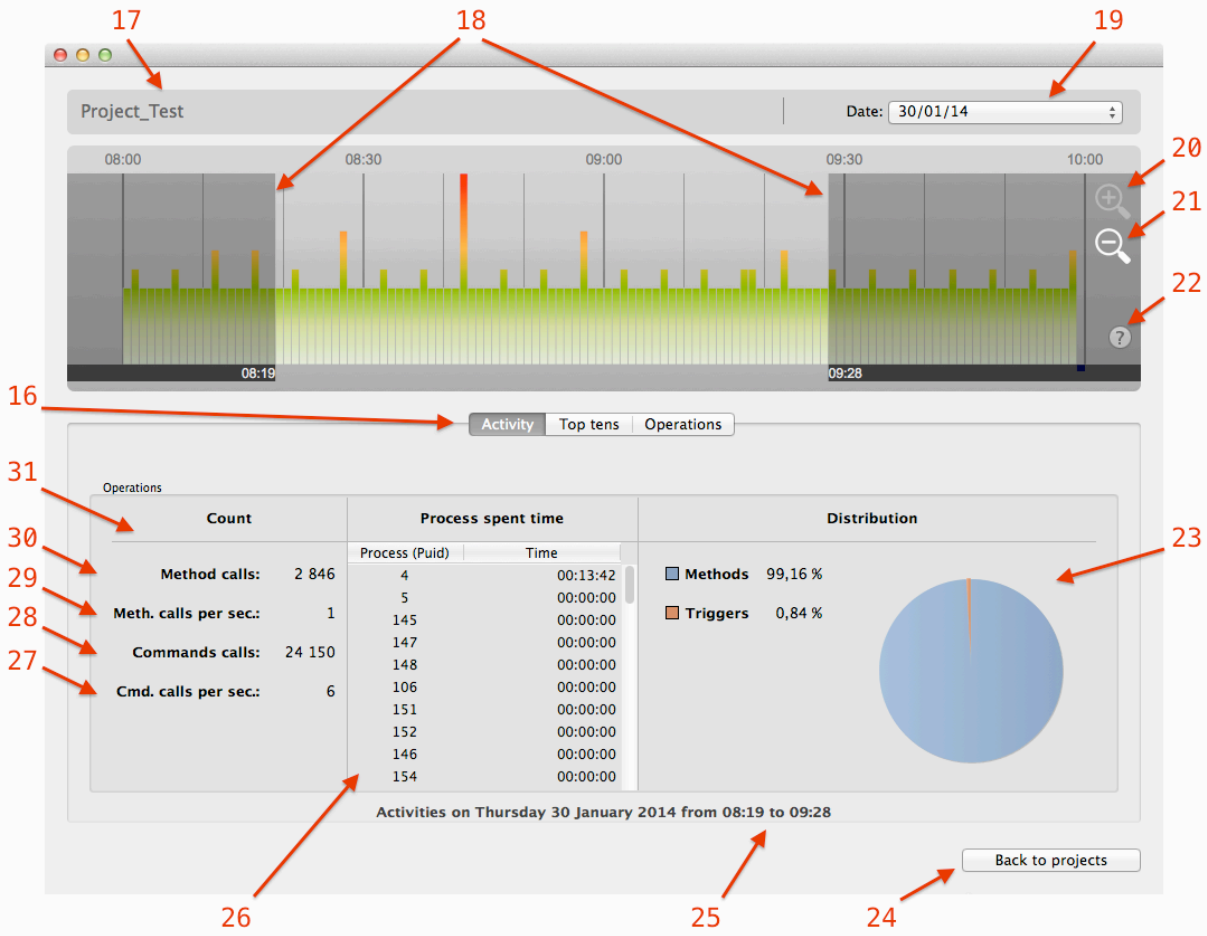


The chart reflects the level activity in the time period. Please note that the graph is proportional to the highest peak in all of the logs, not only on the period shown.

If you have debug logs on multiple days, use the date selector (19) to change the day.

To zoom in or out the chart, move the grey borders (18) be moved to select the period. Then, you can use zoom in (20) or zoom out (21) button. This information is available in Tool tilt help (22).

Activity tab



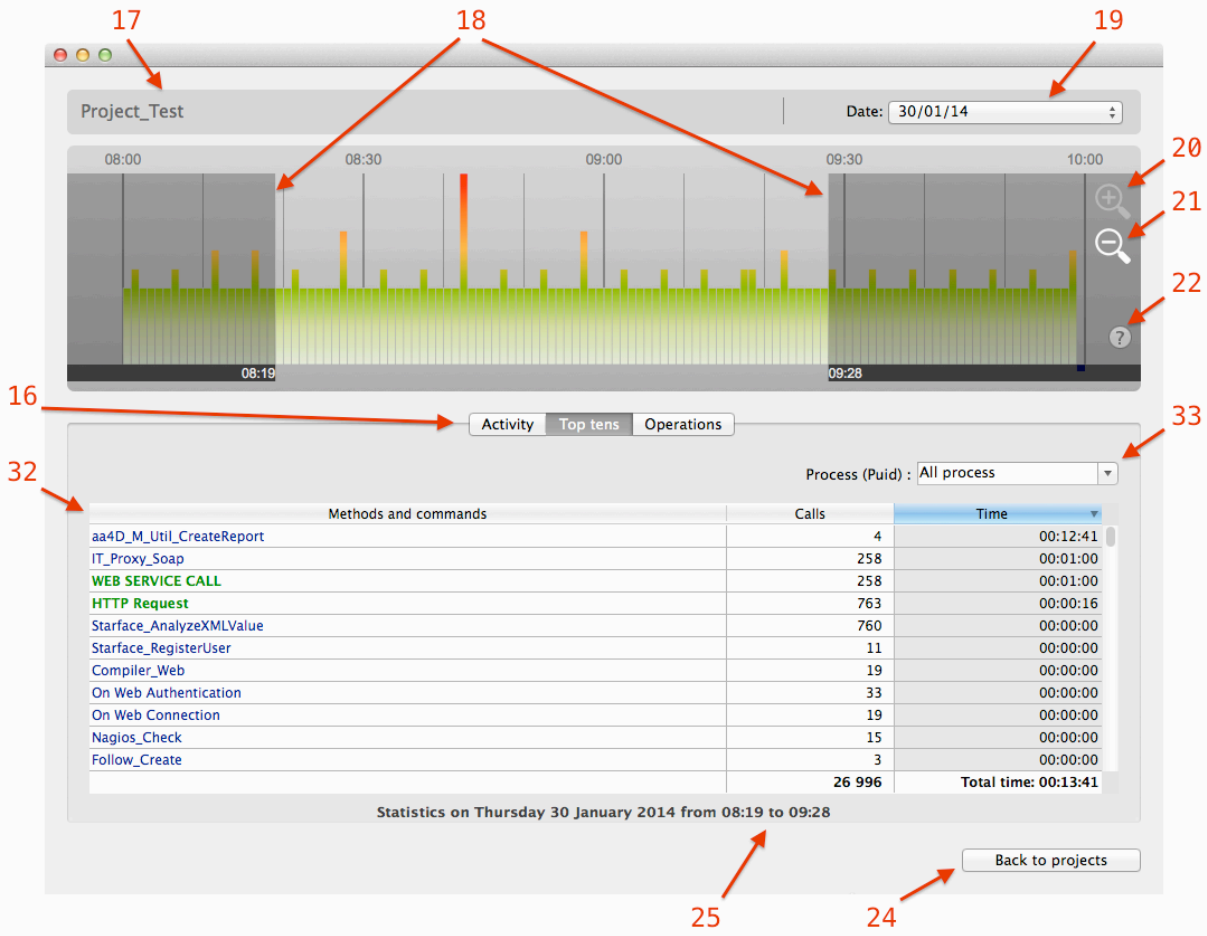
The "Activity" tab (16) gives an overview on the period that is selected on the chart (25).

The following information is available:

- Statistics on methods and commands (31):
  - Number of method calls (30)
  - Number of method calls per second (29)
  - Number of command calls (28)
  - Number of command calls per second (27)
- Spent time by Process (26)
- Distribution between triggers and method calls (25)

The measured and displayed times are the execution time, not the CPU time.

Top Ten tab



The purpose of the "Top Ten" tab (16) is to help you identifying the commands and methods that are consuming the most execution time so that you can analyze whether it is normal or not.

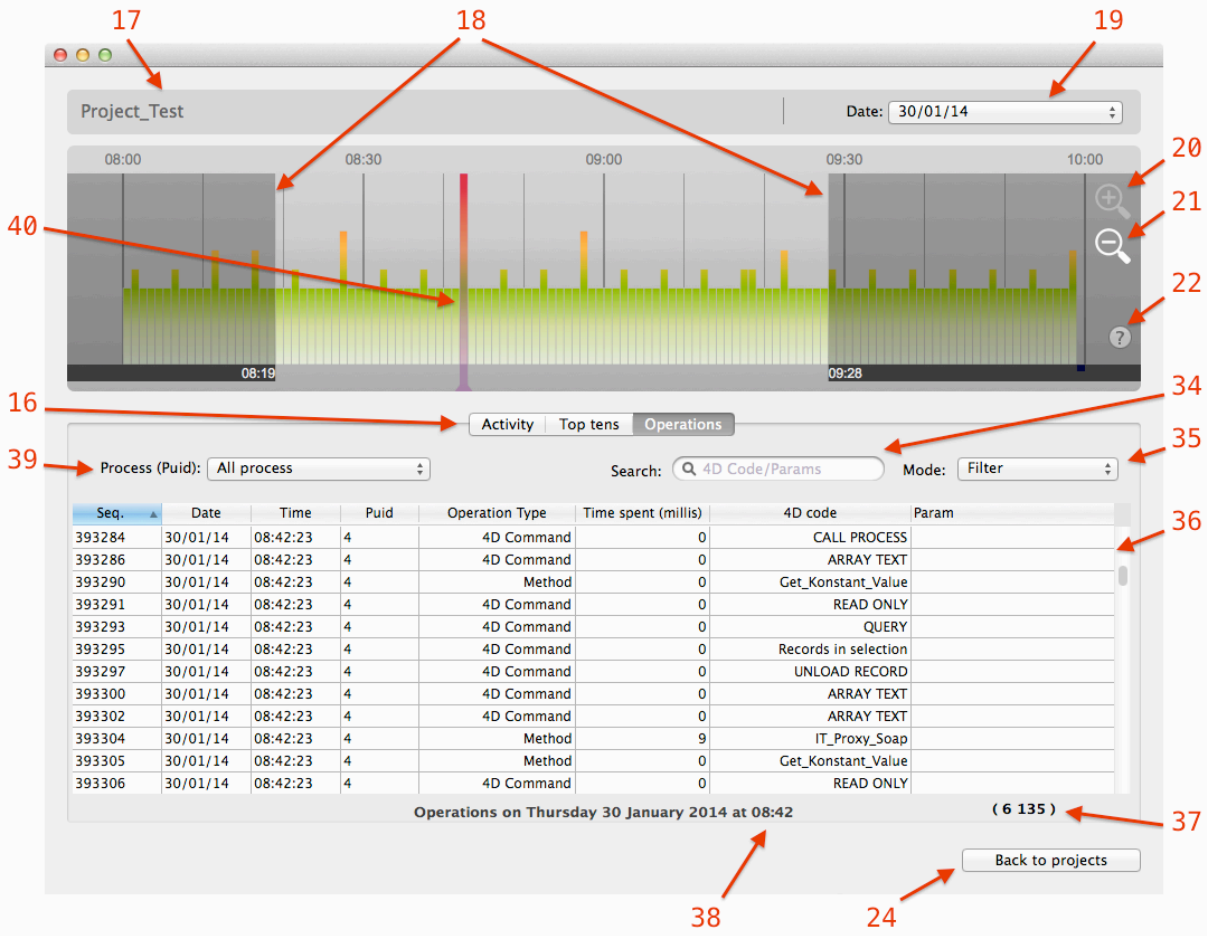
The grid (32) displays the number of call and times spend* cumulated by methods and commands on the period that is selected on the chart (25).

It is also possible to display the "Top Ten" for a specific process. To do so, select the PUID using the process selector (33).

To display only methods, only commands or both, do a right click on the header (32) and use the contextual menu to filter by methods, commands, or methods and commands.

Note: DELAY PROCESS and WAIT SEMAPHORE commands do not take any processing time; it's just a waiting time. In this case, the execution time is displayed with a negative value so that those 2 commands are not showing at the very top of the list, as this is not meaningful. If method A calls method B, which calls DELAY PROCESS(Current Process;120), method A has a 2 second execution time.

Operations tab



The "Operation" tab (16) gives the detail of the log file content for a one-minute period (38).

To select the minute you want to look at, move the cursor (40) on the chart. Then the tool will display each operation in grid (36), containing the following information:

- Sequence number
- Date
- Time
- Process PUID
- Operation type
- Time spent
- 4D Code
- Input parameter
- Number of operations (37)

To display the "Operations" for a specific process, select the PUID using the process selector (39).

To search in grid by 4D Code or Parameters column, use the “Search” field (34). The search result can be either filtered or highlighted according to the “Mode” selector (35) position.

Conclusion

The tool makes it easy for developers to read, understand and analyze the new 4D logs. This Technical Note aimed to provide enough insight to allow the 4D Developer to take advantage of this powerful tool.

Reference

User Interface Nomenclature

Items	Description	Items	Description
1	List of projects	21	Zoom out
2	Current project	22	Help tool tip
3	Title	23	Distribution pie
4	First operation	24	Back to projects
5	Last operation	25	Date and time of selected period on chart
6	Number of lines	26	Process spent time
7	Comments	27	Commands calls per
8	Import date	28	Commands calls
9	Import duration	29	Methods calls per
10	Size of log files	30	Method call
11	Log folder path	31	Count
12	Change path logs	32	Top ten grid
13	Display details button	33	Process PUID selector
14	Delete project button	34	Search
15	New project button	35	Mode selector
16	Tab selector	36	Operation grid
17	Title of project	37	Number of items in Operation grid
18	Grey border for selected period on chart	38	Date and time of minute selected on chart
19	Date selector	39	Process PUID selector
20	Zoom in	40	Minute selected