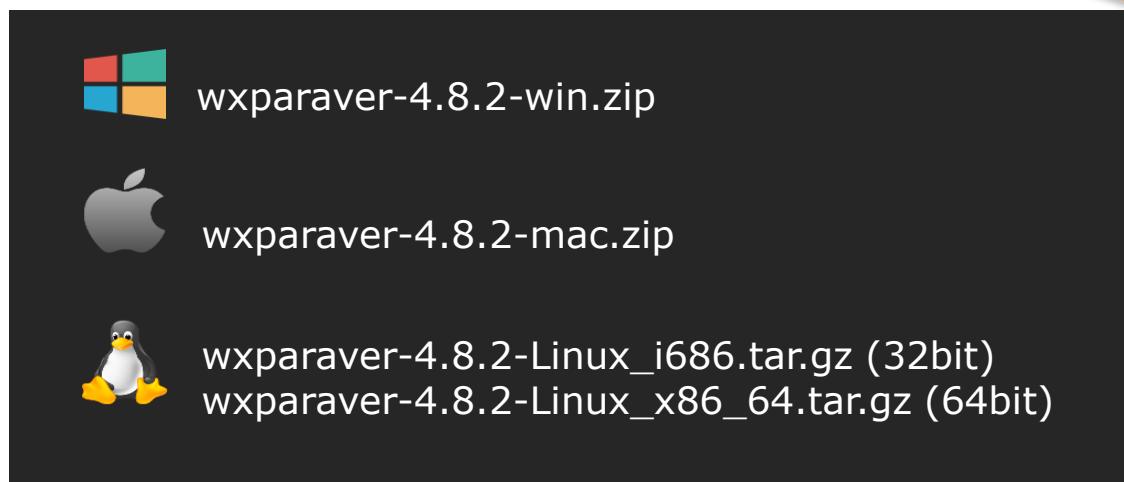


Paraver Installation

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Install Paraver in your laptop

- Download a binary for your OS
 - <https://tools.bsc.es/downloads>



The screenshot shows the "Downloads" section of the BSC Tools website. The "CORE TOOLS" section is highlighted, showing the Paraver download link, which is also highlighted with a yellow box and arrow. Other tools listed include EXTRAE, DIMEMAS, CLUSTERING, SPECTRAL, TRACKING, FOLDING, and BASIC ANALYSIS.

CORE TOOLS

- EXTRAE**
Instrumentation framework to generate execution traces of the most used parallel runtimes.
[Get EXTRAE](#) Version 3.4.1 • 2.24 MB
101 RAW
- PARAVER**
Expressive powerful and flexible trace visualizer for post-mortem trace analysis.
[Get PARAVER](#) Version 1.0.2 • 1.65 MB
101 RAW
- DIMEMAS**
High-abstracted network simulator for message-passing programs.
[Get DIMEMAS](#) Version 5.2.12 • 1.09 MB
101 RAW

PERFORMANCE ANALYTICS

- CLUSTERING**
Automatically expose the main performance trends in applications' computation structure.
[Get CLUSTERING](#) Version 2.6.6 • 2 MB
101 RAW
- SPECTRAL**
Signal processing techniques to select representative regions from Paraver traces.
[Get SPECTRAL](#) Version 3.4.0 • 0.31 MB
101 RAW
- TRACKING**
Analyze how the behavior of a parallel application evolves through different scenarios.
[Get TRACKING](#) Version 2.6.5 • 1.9 MB
101 RAW
- FOLDING**
Combined instrumentation and sampling for instantaneous metric evolution with low overhead.
[Get FOLDING](#) Version 1.0.2 • 11.06 MB
101 RAW
- BASIC ANALYSIS**
Framework for automatic extraction of fundamental factors for Paraver traces.
[Get BASIC ANALYSIS](#) Version 0.2 • 10.89 MB
101 RAW

Install Paraver tutorials

- Download tutorials archive
 - <https://tools.bsc.es/paraver-tutorials>



A screenshot of a web browser displaying the Paraver documentation page. The URL in the address bar is "news@tools:~ > Paraver 4.7.2 avail". The page title is "Paraver tutorials". It shows a list of seven tutorials:

- Paraver introduction (MPI)
- Dimemas introduction
- Introduction to Paraver and Dimemas methodology
- Methodology
- Tutorial on HydroC analysis (MPI, Dimemas, CUDA)
- Trace preparation
- Trace alignment tutorial.

Below the list, a note says: "If you prefer you can download all of them together in a single package:" followed by two download links:

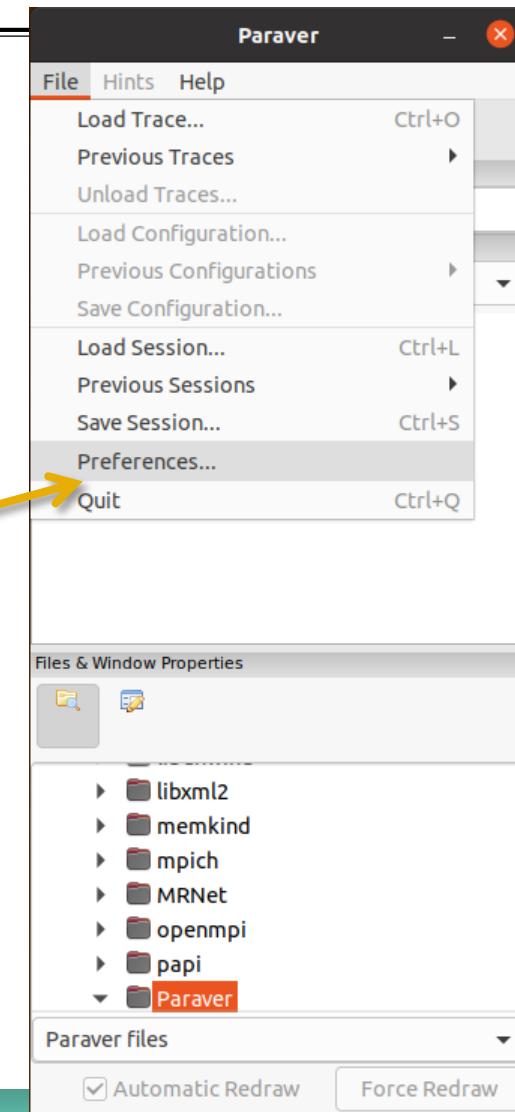
- .tar.gz format (127 Mb)
- .zip format (127 Mb)

Install Paraver (III)

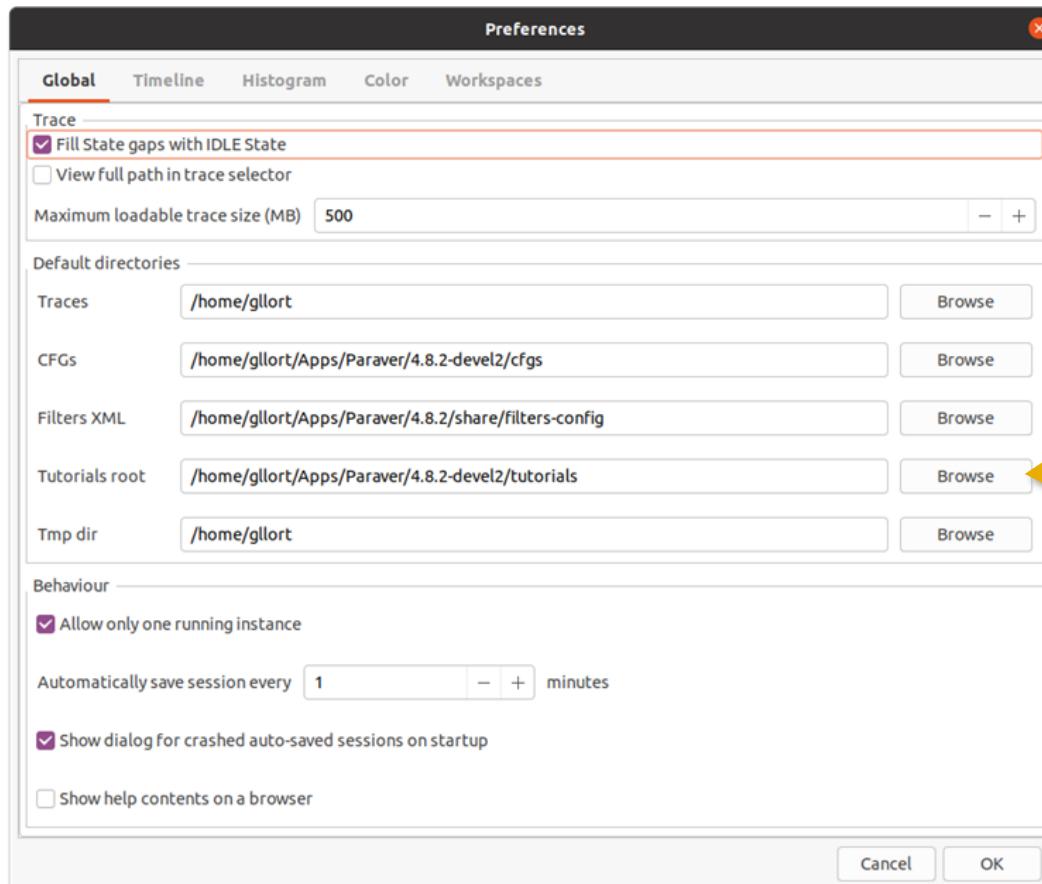
- Uncompress downloaded packages
- Rename the folders:
 - wxparaver-4.8.2-* → paraver
 - paraver-tutorials-20150526 → tutorials
- Start Paraver:
 - Linux: Run the command:

```
laptop$ paraver/bin/wxparaver
```
 - Windows: Double-click on paraver/wxparaver.exe
 - MAC: Double click on paraver/wxparaver.app

- Open File → Preferences



Install Paraver (IV)



- Setup the “Tutorials root” pointing to your folder “tutorials”

Click Browse and select your folder “tutorials”

Install Paraver (IV)

- Check tutorials are properly installed



- Follow these tutorials by clicking on the hyperlinks and reading the explanations. When you click on a link, multiple views will open.

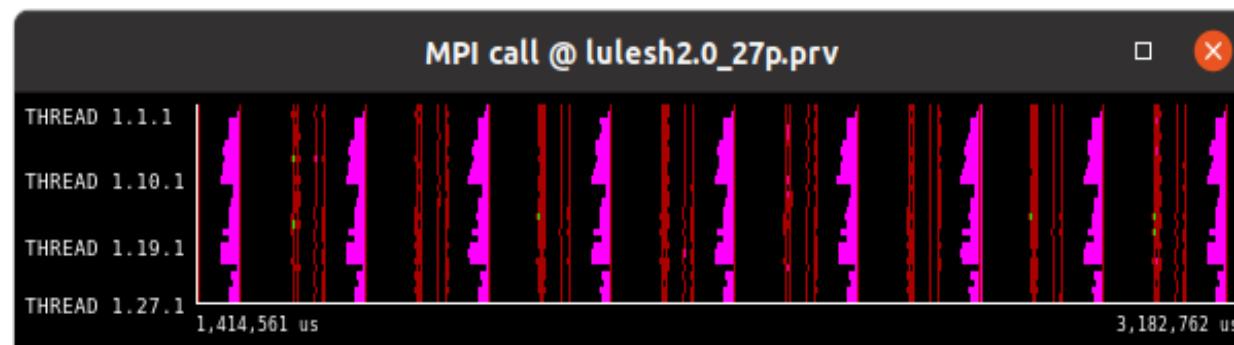
Paraver Introduction

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3 main views of Paraver (I)

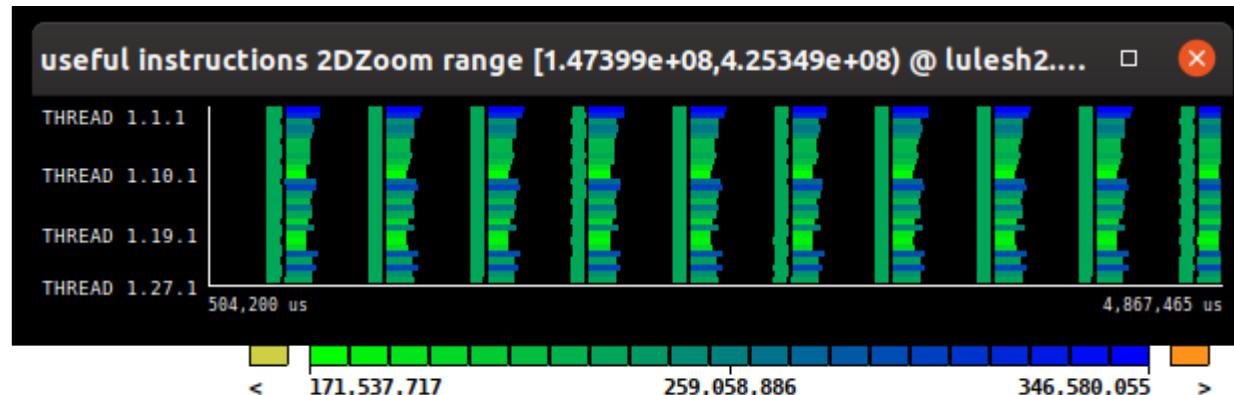
- Timeline

↑
Processes (and threads)
↓



Code color
(e.g. 1 color for each MPI call)

▀ Outside MPI
▀ MPI_Isend
▀ MPI_Irecv
▀ MPI_Wait
▀ MPI_Waitall
▀ MPI_BARRIER
▀ MPI_Reduce
▀ MPI_Allreduce
▀ MPI_Comm_rank
▀ MPI_Finalize



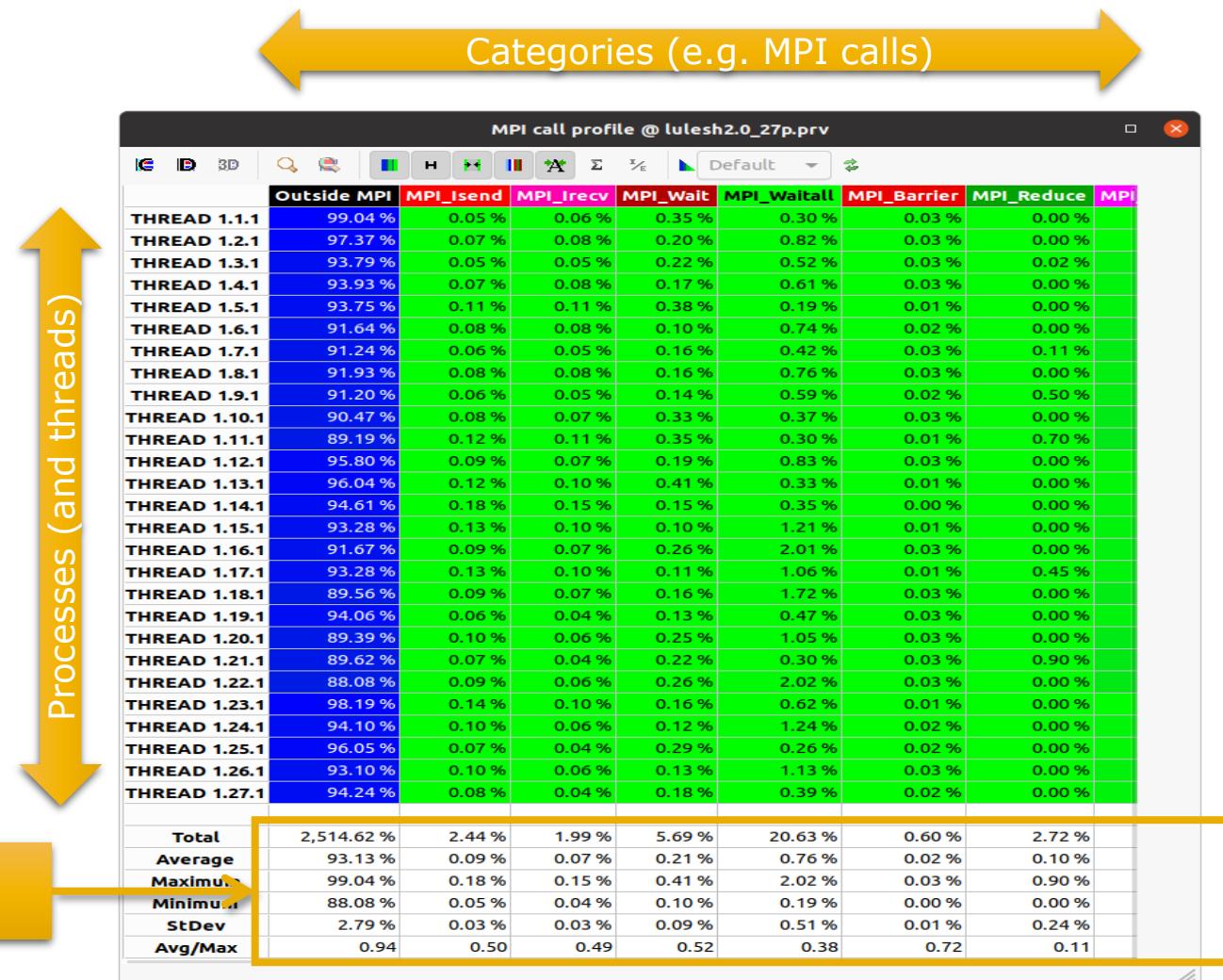
Gradient color
(e.g. from low
#instructions to
high
#instructions)

← Time →

3 main views of Paraver (II)

- Table (Profile)

The table can display a variety of statistics (e.g. % of time, # of calls, etc.) with gradient coloring showing from low values to high values



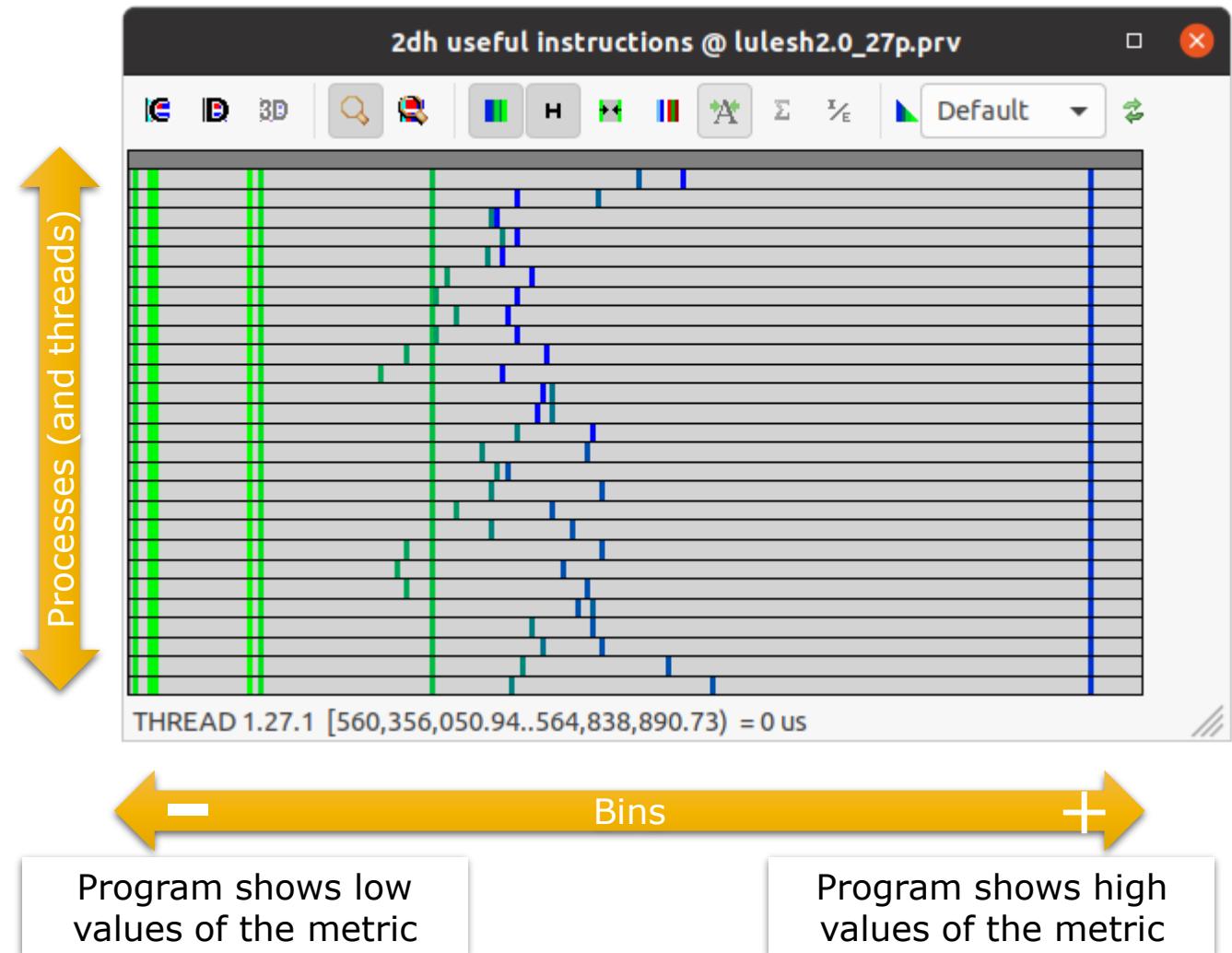
3 main views of Paraver (III)

▪ Histogram

Displays continuous metrics (e.g. **instructions executed**, duration of computations, bytes sent/received, etc.)

Gradient color represents if the value for that behavior is **high** or **low**

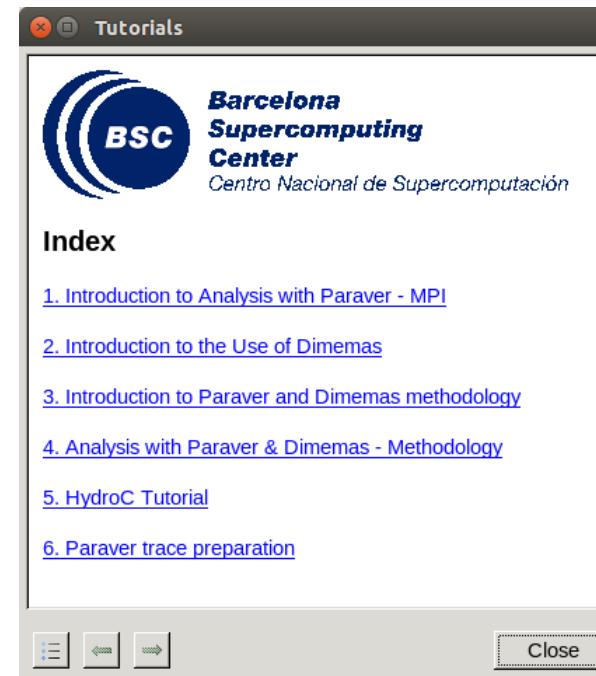
General tip: straight lines are good (all processes show same behavior), while variabilities usually indicate imbalances



First steps with Paraver

- Follow tutorial number...

- 1 → Explains basic navigation with the tool
- 3 → Basic analysis methodology (first 4 bullets, Clustering and Dimemas part not covered)
- 5 → Analysis methodology applied to a real application



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