

Evaluation Center

State of the art development cycle support for applicators

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Preview

To put it very simple: The execution speed of software depends on the number of available cores, number of threads used, CPU frequency, and available RAM.

CPU name	Threads	Up to [GHz]
Core i9-14900HX	32	5,8
Core Ultra 7 155H	22	4,8
Core Ultra 5 135H	18	4,6
Core i7-1185g7	8	4,8
Core i5-8350u	8	3,60

In contrast to other known software packages, Evaluation Center processes measurement data with all available threads of a given CPU.

This feature speeds up execution time versus known software packages by a factor of 8 to 32.

For processed files with just a few additional measurements Evaluation Center is even faster.

Please, discover now how this is achieved...

Typical problems with data analysis / Statements from users



„Runtimes are too long and I hope the program doesn't crash!“



„I have various files with various signal names and units!“



„My script is running each file sequentially!“



„In Finland i need an evaluation in the car!“



„We need one tool for big and quick analysis!“



„I have to write my own evaluations because programmers don't understand my needs!“



„I need a validated tool!“

Your benefits with Evaluation Center



Top 1

Cycle time reduction



Top 2

Tool for fleet evaluations



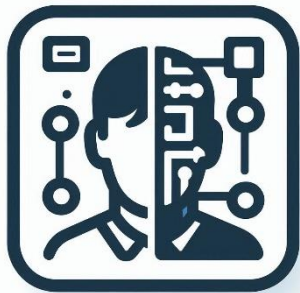
Top 3

Full use of multicore capabilities



Top 4

Offline Tool for world wide usage



UI: Standalone & Concerto Add-In



Support by experts & optional AI



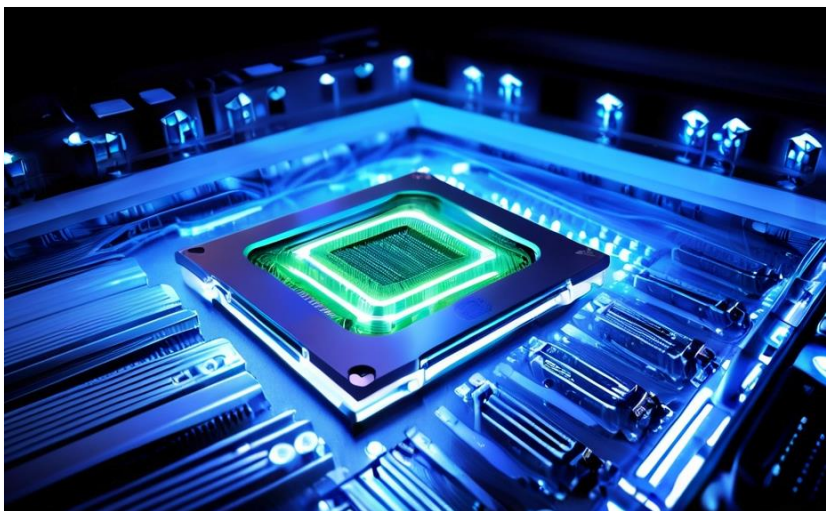
Assured quality through unit tests

Processing of a huge amount of files: Multithreading and elapse time of runs



COMPUTATION ON ALL CPU CORES* WITH RAM-CPU-LIMITATION-FUNCTION

ELAPSE TIME OF DEMO EVALUATION: 100 GB IN 37 MINUTES* @I5-8350U



```
### Multithreading in process ###  
Evaluation: demo3_testdaten  
Thread 10-17 of 39 : 25%   Speed: 338GB/h  
  
#####  
#                                                                    #  
#   Don't close this window during processing!                       #  
#                                                                    #  
#####  
  
C:\Users\... \Desktop\Testdaten\Testdatei_vehicle1_7.dat  
C:\Users\... \Desktop\Testdaten\Testdatei_vehicle1_8.dat  
C:\Users\... \Desktop\Testdaten\Testdatei_vehicle1_9.dat  
C:\Users\... \Desktop\Testdaten\Testdatei_vehicle2_1.dat  
C:\Users\... \Desktop\Testdaten\Testdatei_vehicle2_10.dat  
C:\Users\... \Desktop\Testdaten\Testdatei_vehicle2_11.dat  
C:\Users\... \Desktop\Testdaten\Testdatei_vehicle2_12.dat  
C:\Users\... \Desktop\Testdaten\Testdatei_vehicle2_13.dat
```

*) With performance option

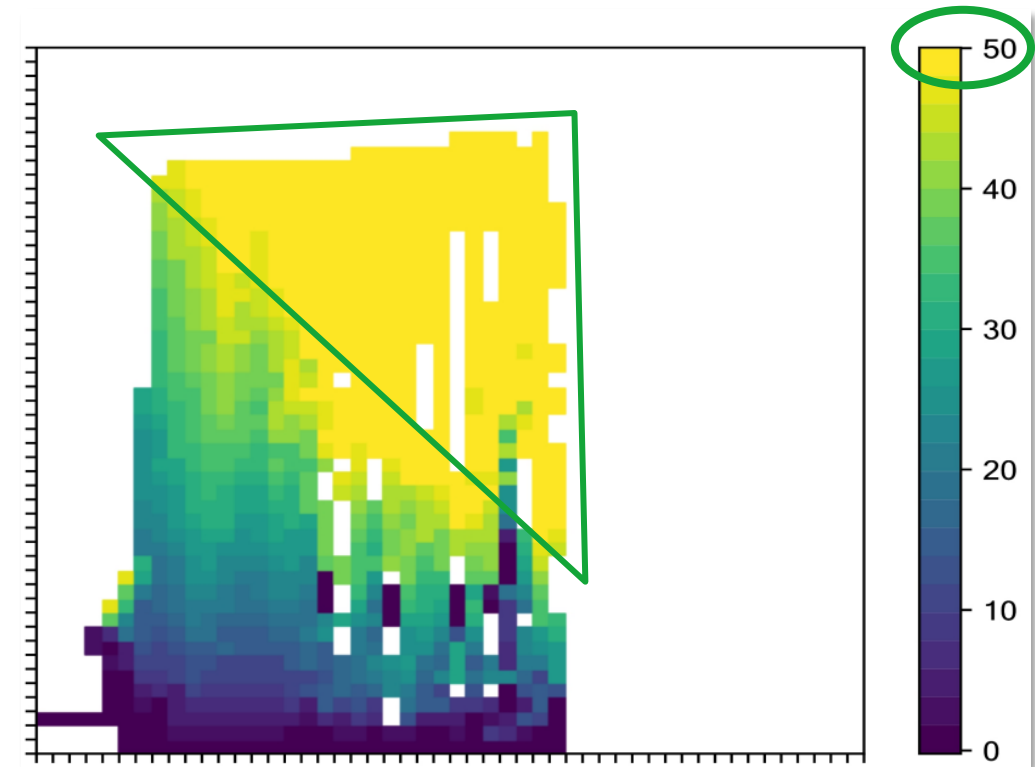
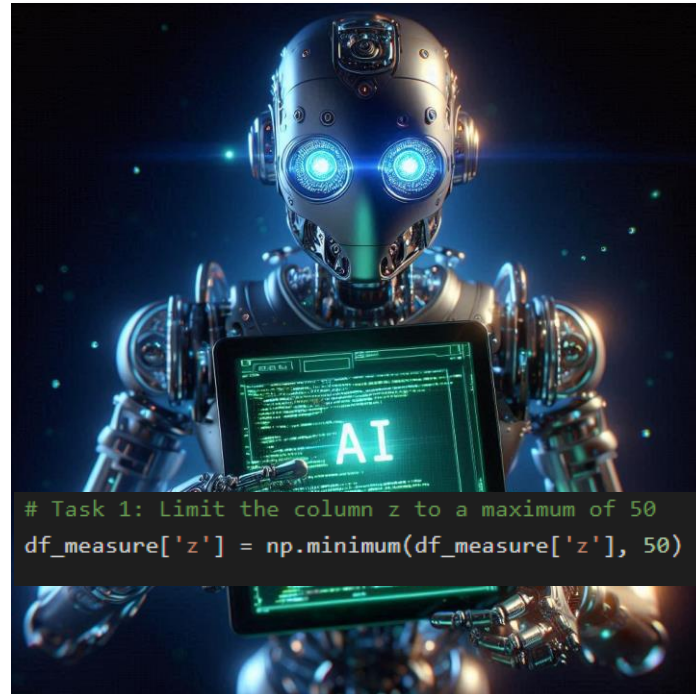
Artificial Intelligence support for scripting



ONLINE AI SUPPORT FOR SCRIPTING BY API'S (WITH ADDITIONAL ACCESS KEY)

NO SIGNALS GOES TO THE CLOUD, ONLY THE DESIRED EVALUATION COMMAND

„Limit my data in
column z to 50“



The Evaluation Center as standalone application



Get your results in 5 steps:

1) DEFINE INPUT AND OUTPUT

2) SELECT JOB TO PROCESS

3) ADJUST YOUR PARAMETERS

4) ADD JOB TO JOBLIST

5) PRESS START-BUTTON

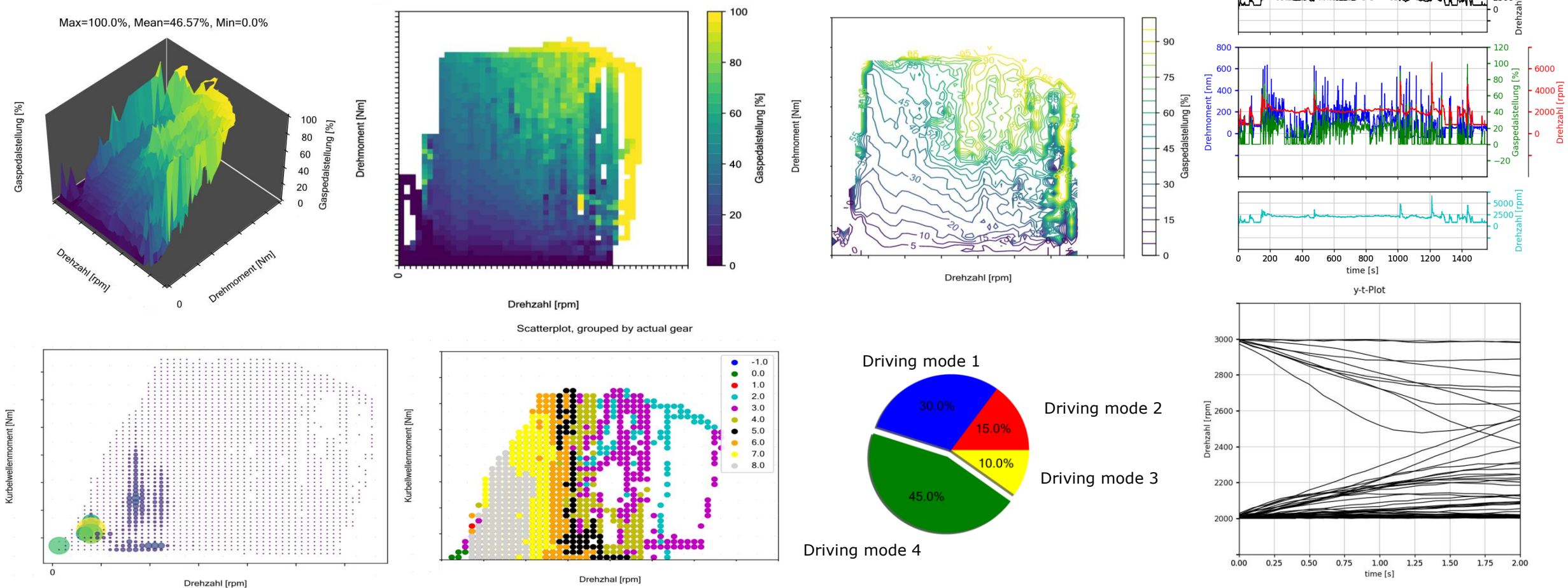
The screenshot displays the 'Evaluation Center' application window. The interface is divided into several sections:

- Software:** Includes radio buttons for 'SW1: Fleet evaluation', 'SW2: Own evaluation', and a checked 'Prof. mode'. There are buttons for 'License' and 'Handbook'.
- Setup:** Shows a file path 'C:/Users/.../Desktop/Testdaten1/Testdatei_vehicle1_1.da' and a button 'Open measure to get labels'. A 'Filter' field is also present.
- Filter:** A list of filters including '\$EVENT_COMMENTS', '\$FETK:1_MeasurementInfo', '\$PAUSE_COMMENTS', and '\$SNAPSHOT'.
- Evaluation parameter (as Python code):** A text area containing Python code for defining evaluation settings and a settings dictionary. A green '3.' is placed next to this section.
- Job:** Includes fields for 'Job ID' (291848) and 'Joblist ID' (50206406), both with 'New' buttons. There are checkboxes for 'Act. speed mode' and 'Cont. after abort', and a 'Set parameter' button.
- I/O:** Includes 'Add folder' and 'Add files' buttons, a 'Set output path' field, and a 'Start' button with a green '5.'.
- Gridplot:** A large grid plot titled 'Gridplot: Mittelwert von Gaspedalstellung' showing a heatmap of pedal position values. The x-axis is 'Drehzahl [rpm]' and the y-axis is 'Drehmoment [Nm]'. A color bar on the right indicates values from 0 to 100. A green '4.' is placed next to the 'Add' button in the Job section.



Fleet evaluation standard diagrams

Various data classification in 3D, 2D, 1D and also time based plots





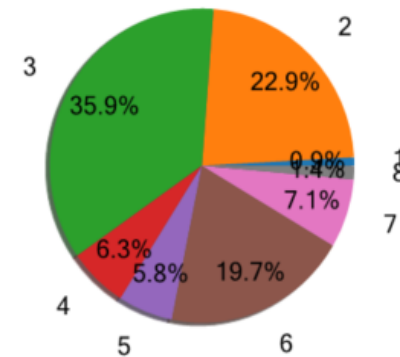
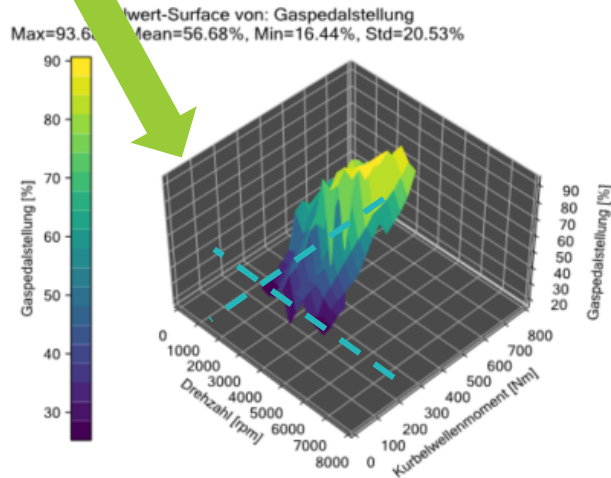
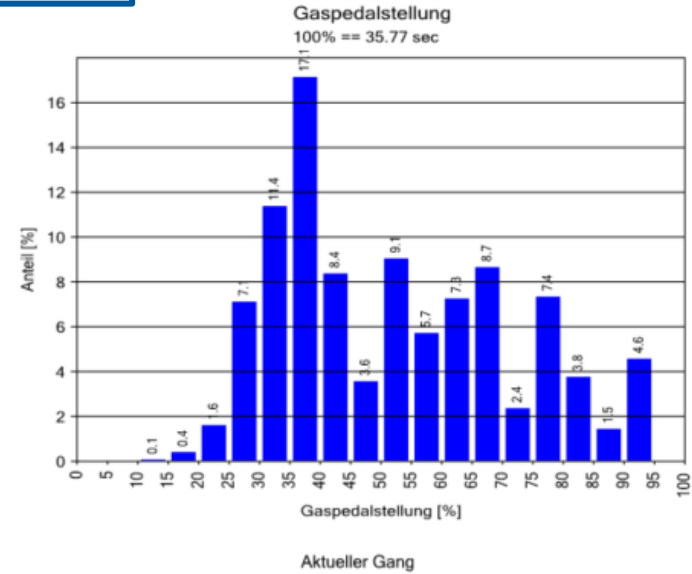
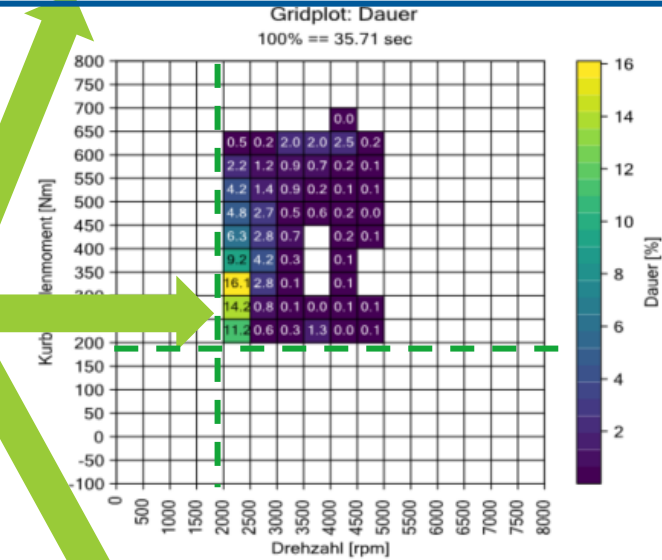
Usage of manual filter conditions

Update
(2x click)

Trigger: (Crankshaft_torque > 200) & (Rotation_speed > 2000)

The trigger is a manual filter condition and offers data selection for all diagrams !

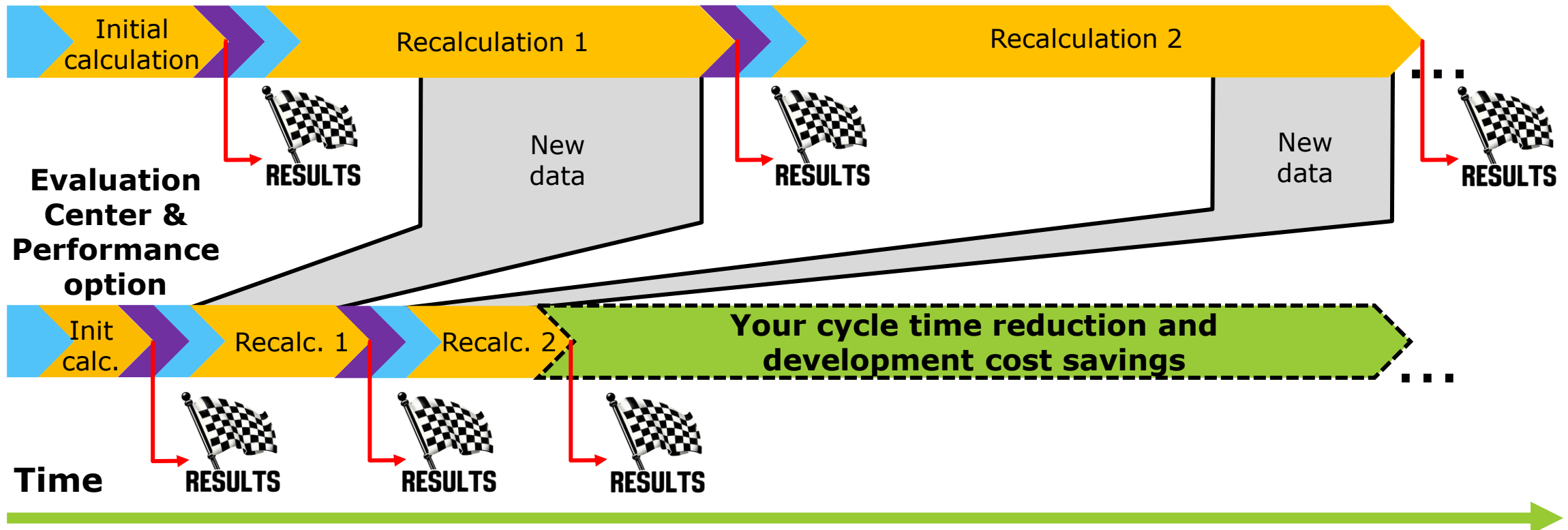
With Concerto all by drag&drop.



Traditional approach vs. Evaluation Center



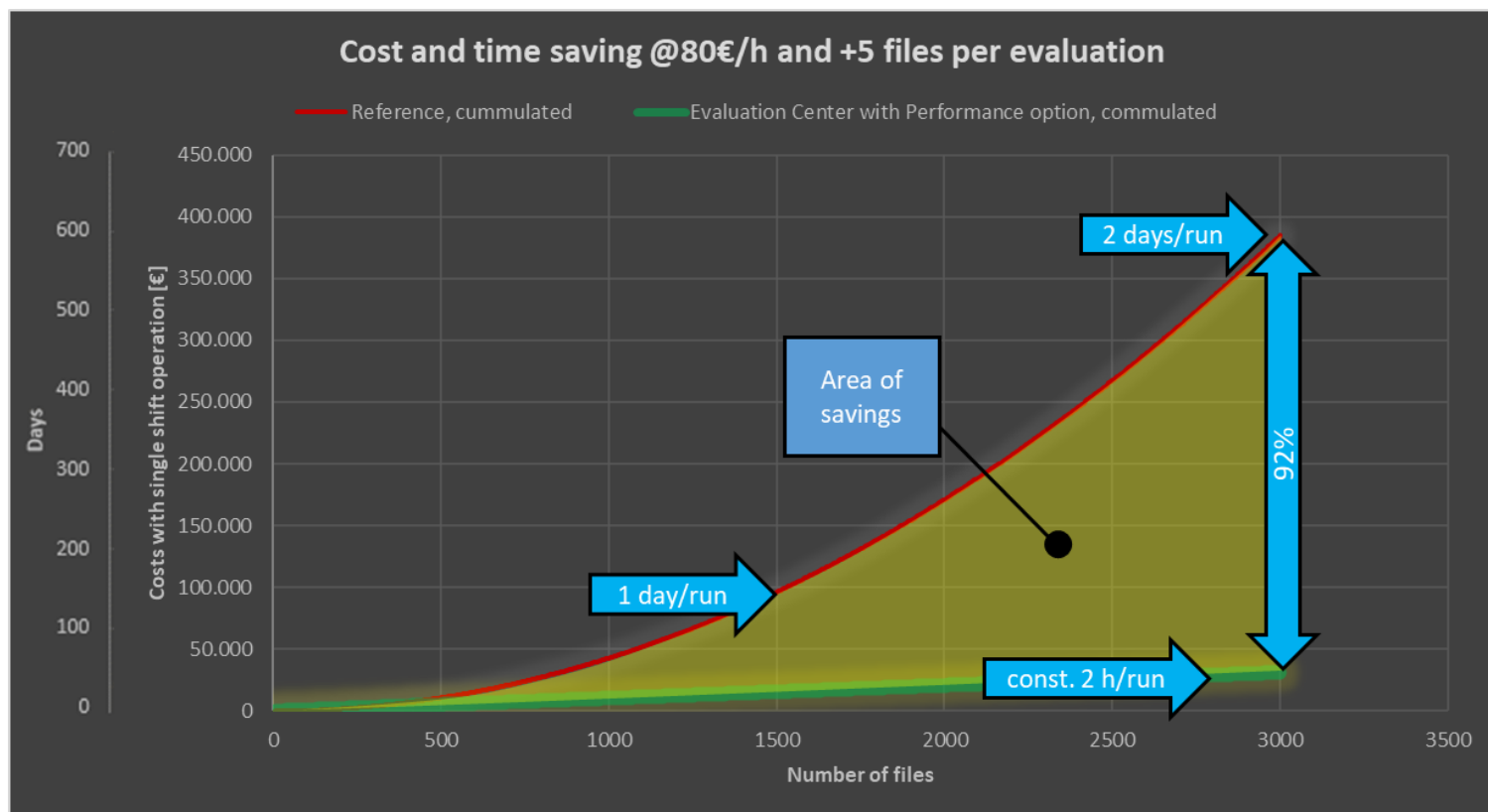
Traditional approach





Your savings by a user story:

- **Just one** fleet measurement, **one** evaluation by **one** user
- 5 new files from your testing team for re-evaluation
- The test ends with 1500 GB and 3000 measurement files
- The example evaluation computes 700 signals at 10ms sample rate



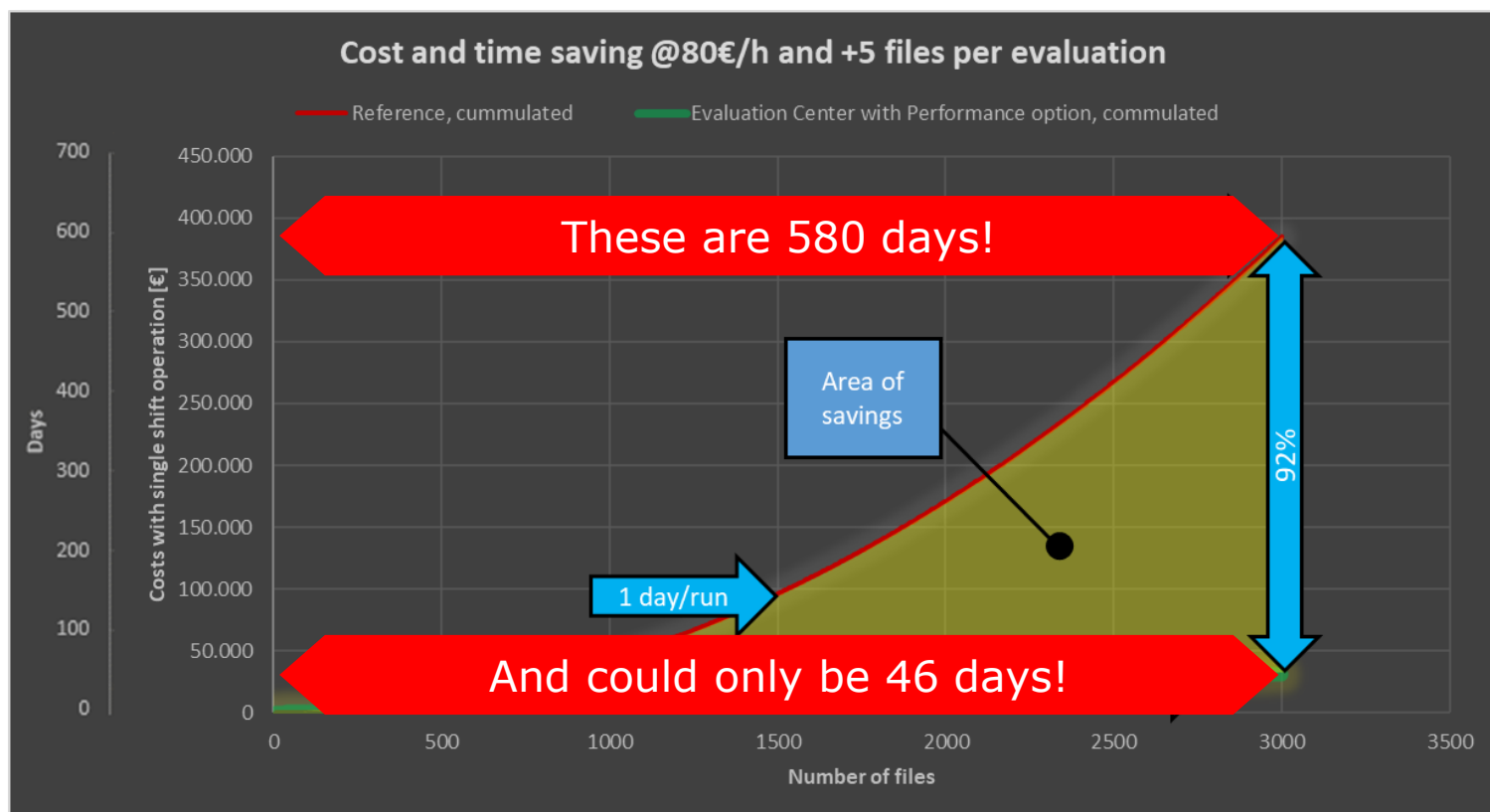
Observation

- **Square vs. Linear**
- **Saving of 92%: 354.000€**
- Saving rises extremely with smaller count of new files
- Saving rises linear with number of
 - Evaluations
 - Measurement tasks
 - Users
- **Compared the license costs are small**



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Observation

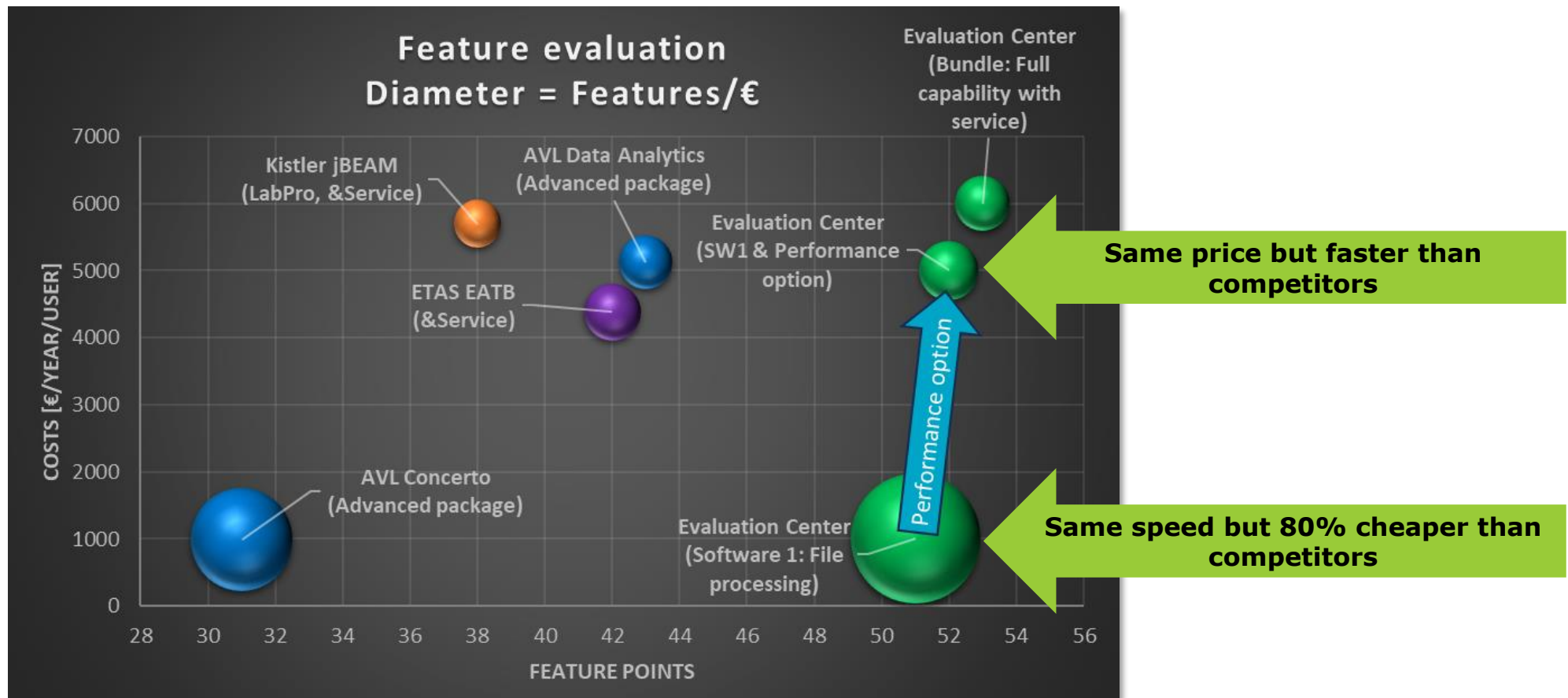
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Feature Evaluation and pricing



USP: HIGH CALCULATION SPEED BY PERFORMANCE OPTION

EVALUATION CENTER HAS A BIG PORTFOLIO



Summary: Evaluation Center



Cycle time reduction and development cost savings



Fleet evaluations without limit on file count



Multicore support by performance option



Offline Tool (no internet connection)

- High calculation speed for new files
- Support by experts and optional Artificial Intelligence
- AVL Concerto option

Let's think big, internally and externally.

Thank you

huebner.martin@gmx.de

www.hybersoftsolutions.de

Pricing

We can offer a one-year license agreement for laptops with an initial trial period of 1 month. The prices will be guaranteed for a period of three years.

Option	Feature	Prices per user
Basic Software 1 *1	File processing (e.g. Fleet evaluation)	1000 €/Year
Basic Software 2 *1	User experience (Diagram generation)	1000 €/Year
Performance option	Very high speed up after initial calculation *2	4000 €/Year
Maintenance service	Updates, Upgrades, Hotfixes	1500 €/Year
Expert Consulting	<ul style="list-style-type: none">Getting online live supportGetting evaluations acc. your specification	1000 €/day
Bundle	Basic Software 1&2 , Performance option and Maintenance service	6000 €/Year (Is -20% discount)

*1) The licenses are bound to your username, userdomain and MAC-Address.
The licenses are not transferable, just in case of getting a new hardware.

*2) In case of partially evaluable results.

Features of Evaluation Center and competitors

Feature	ETAS MDA	ETAS EATB	Kistler jBEAM	AVL Data Analytics	AVL CONCERTO 5	Evaluation Center	Basic SW1 Scripting	Basic SW2 UserExperience Phasen	Statistics
							Evaluation Center feature availability		
Analysis of measurements and visualization	+	+	+	+	+	+	•	•	•
Processing of high amount of files	-	+	+	+	0	+	•	•	•
LLM-Supporting by evaluation-scripting in python-code (external,optional)	-	-	-	-	-	+	•		
Multicore-App with RAM limitation functionality	-	evaluations parallized	partly by filtering	evaluations parallized	-	+	•		
Duration of processing	-	not rated, single core	not rated, single core	not rated	single core	+	fast	fast	fast, duration scaled by diagram count
Statistical diagrams	-	+	+	+	+	+	•	•	•
Fast and easy start of analysis jobs	0	+	+	0	+	+	•	•	•
Trigger creation by drag&drop	0	+	+ (by config window)	+	0	+		•	•
Free adjustable plot settings	0	+	+	+	+	+	•	•	•
Very high calculation speed!* (Optional feature)	-	-	-	-	-	+	•	"just" multithreading	"just" multithreading
Calculation is abortable with restarted from last point of calculation	-	-	-	-	-	+	•		
Fast customer orientated creation of diagrams	-	+	0	+	0	+	•	•	•
Calculation over all input files	-	+	+	+	0	+	•	•	•
Calculation of just new files including recent files	-	0	0	+	-	see opt. Feature	•		
Signal selection, usage of alternative signals or replace valaues	-	+	+	+	+	+	•	•	•
Unitmapping (e.g. 1mph + 1km/h ==> 1,61km/h + 1km/h)	-	by script, not automatic	+	+	+	+	•	•	•
Direct visualization of time-bases sections ("phases")	-	+	by template	0	-	with AVL Concerto	•	•	•
Zoomable layout (zoom in, zoom out, shift left, shift right)	+	+	+	+	+	with AVL Concerto	•	•	
Process your joblists	-	+	+	+	0	+	•		
Validation by unittests	-	+	+	+	-	+	•		
Input formats: .mf4, .mdf, .dat, additional by arrangement	+	+	+	+	+	+ (and .xlsx, .xls, .csv)	•	•	•
Output format: PDF, PNG, Excel	-	+	+	+	+	+	•		
Documentation of parameters and file information in the output	-	+	by template	0	+	+	•		
Unique connection between results and jobs	-	+	by template	+	0	+	•		
Online tool	-	-	other program	+	-	-	"It's no bug, it's a feature!"		
Offline tool	+	+	+	-	+	+	•	•	•
No limit by coding lines	+	+	+	+	+	+	•	•	•

From 2024.08.01

Legend:	
+	: very good / faster
0	: neutral
-	: not available / slower

*) This is valid after a initial calculation of a huge number of files and for adding some new files. In case of a partially evaluable result.

Interfaces for customers

Software 1 Fleet evaluation:

e.g. script
demo_testdaten.py



Software 2 Own evaluation:


In Concerto with
Drag&Drop
+
ClickClick
=
Result finished



CONCERTO Layout creation



Basic Software 1: File processing user interface for AVL Concerto

 **Evaluation Center**

License infoDocumentationConfig

UnittestsFleet evaluation demo

Revision: 20240101
C.Release: 507 B94
User: u16j17

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☒ Activate expert mode

Input paths or files:
C:\Users\... \Desktop\Testdaten1

Step 1: Evaluation

Output path:
C:\Users\... \Desktop\Testdaten1

Vehicle list, komma separated.
For choosing comments of measurements use: 'HD:string1|string2|...|stringN'
Optional: 'unkown', 'singlefile', 'overall' (== default if empty)
overall

Settings

>>> select a evaluation <<<

Optional: Sort all files by first value of numerical label:

☒ Upgrade: Optional speed up calculation of e.g. fleet analysis
☒ Continue after abort

>>> Goto layout <<<

Step 2: Job

AddAllOpenSaveDelete

OwnShow phasesShow results in layout

Step 3: Job lists

☐ show just your job lists

>>> Load job list <<<

NewSaveDelete

Open by joblistID

Set Step1 to all jobs

RUN

Job list (just output!) ID: 56601487

Job-ID	Evaluation	Vehicle	Folder / Files	Output path
808918	abweichung_lambdakor...	overall	C:\Users\... \Desktop\Testdaten1	C:\Users\... \...
810025	data_reduction_with_xl...	overall	C:\Users\... \Desktop\Testdaten1	C:\Users\... \...
265506	demo_simple	overall	C:\Users\... \Desktop\Testdaten1	C:\Users\... \...
985741	demo_testdaten	overall	C:\Users\... \Desktop\Testdaten1	C:\Users\... \...

Define your input measurement files and paths as well as output path. Select and configure your evaluation.

Upgrade

Tool management

Open a predefined evaluation

Add the job to the job-list or manage a existing job. Open the phases or layout to a existing result.

Start the evaluation of the job-list or manage a existing one.

All your defined jobs in the job-list

Time sequences with trigger in AVL Concerto

