





**optiSLang – recent developments**


## ... optiSLang 4.2





 version 4.1.0 – Nov. '13 (WOST)

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 version 4.1.1 – Dec.'13 (WB15)

 version 4.1.2 – Apr. '14

 version 4.1.3 – Jul. '14

 version 4.2.0 – Nov.'14 (WOST)

More than 1500  
enhancements, stability fixes, ...

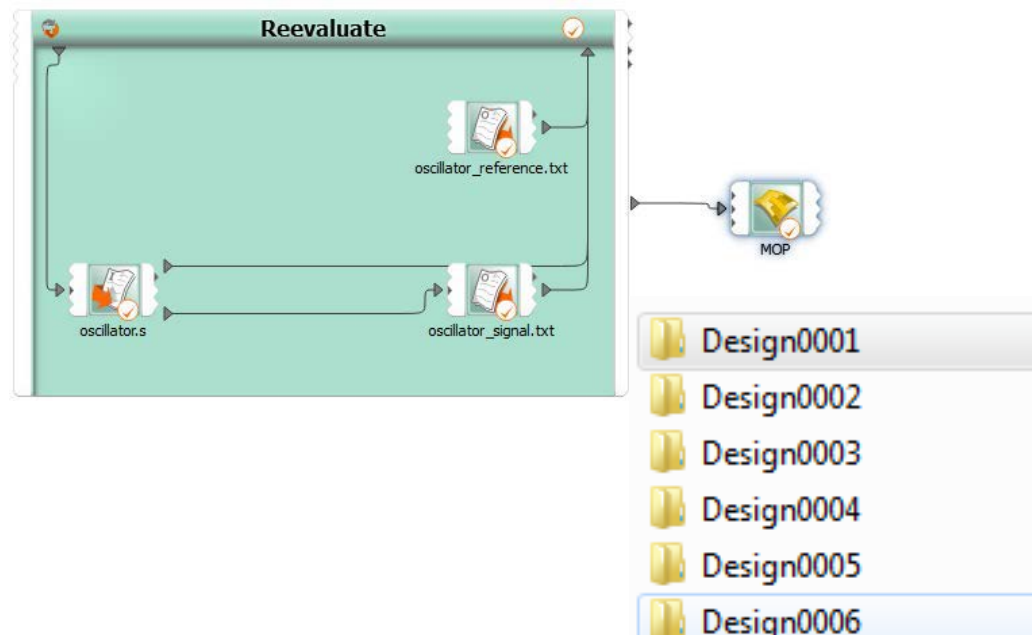
# Re-evaluate

## Read designs from directories

- Inputs and Outputs
- Add Postprocessing/MOP
- Merge with previous analysis results

### In 4.1.2

- Wizard
- Gaps in Directories
- Solver in „read mode“



# Instant visualization

## In 4.1.3

- Quick visual feedback

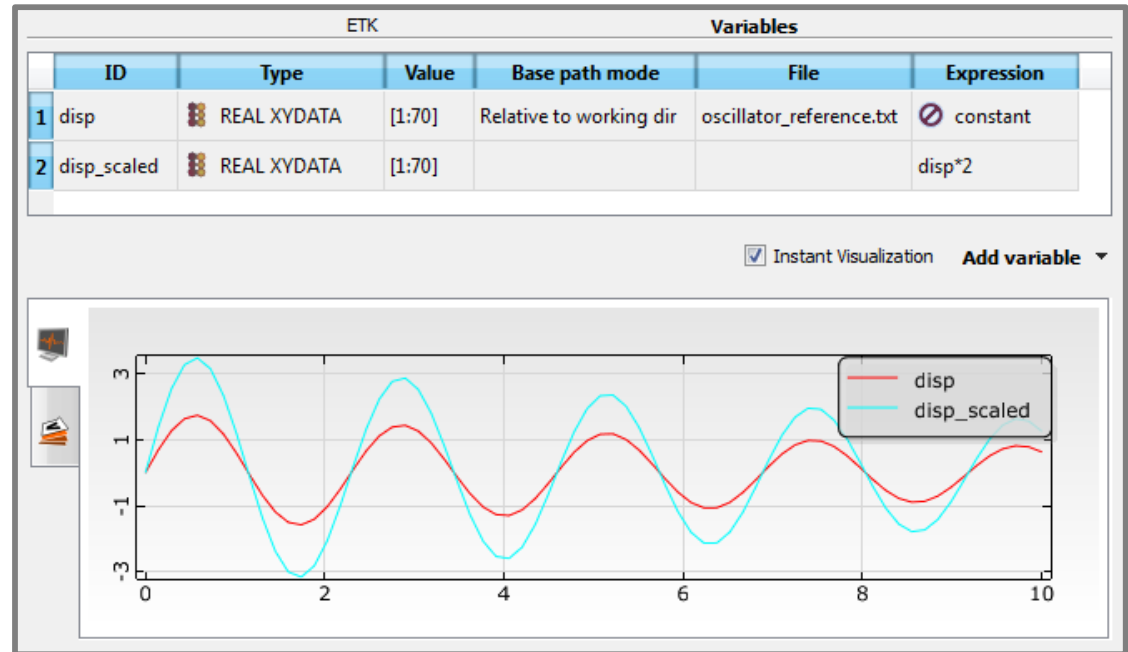
*Plot for Vectors, Signals, Matrices  
Tables for Scalars, Vectors,  
Signals and Matrices*

- Parametrized values

*Show reference value in Output,  
Python, Matlab nodes*

- Multiple values

*Show and compare values of  
registered outputs and derived  
variables*



# ETK inside ANSYS Workbench

## In 4.2.0

- ETK module

*Access output parameters which are not "built-in" Workbench – e.g. arbitrary data in text or .rst files*

- Nonscalar Data

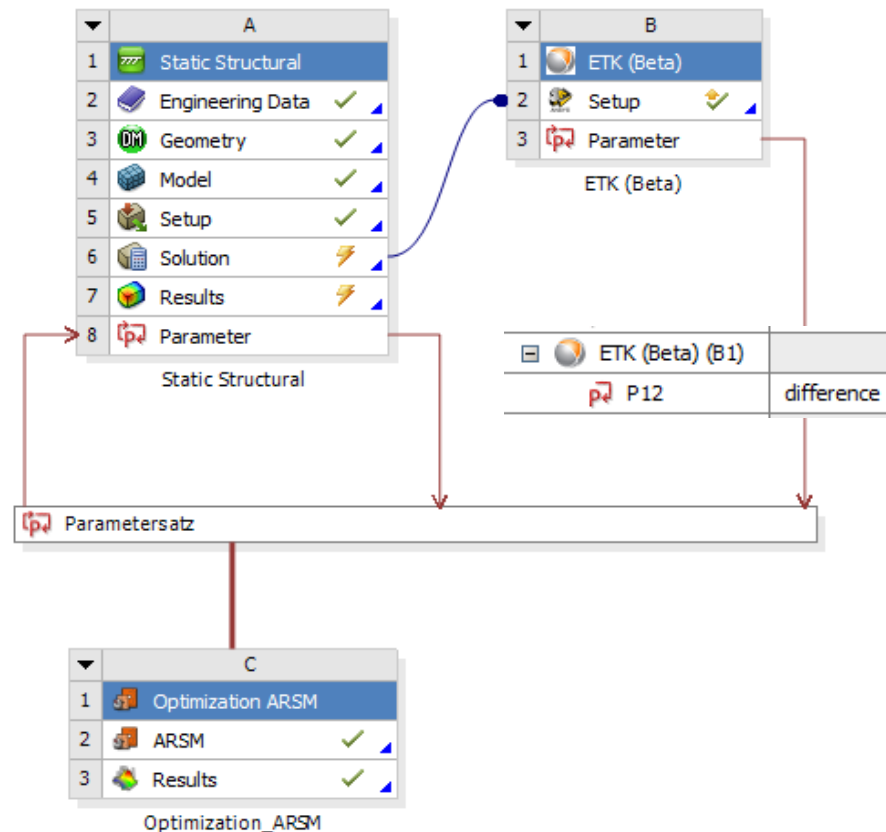
*Use functionality of Extraction nodes inside ANSYS Workbench to work with data which is not supported via ANSYS, i.e. vectors, signals, matrices*

- Register response values

*Use powerful optiSLang calculator functionality to derive scalar values and register them in Workbench Parameter Set*

- Parameter identification

*Use parameterized values to set up calibration task through optiSLang inside ANSYS Workbench*



# Integrations v4.0

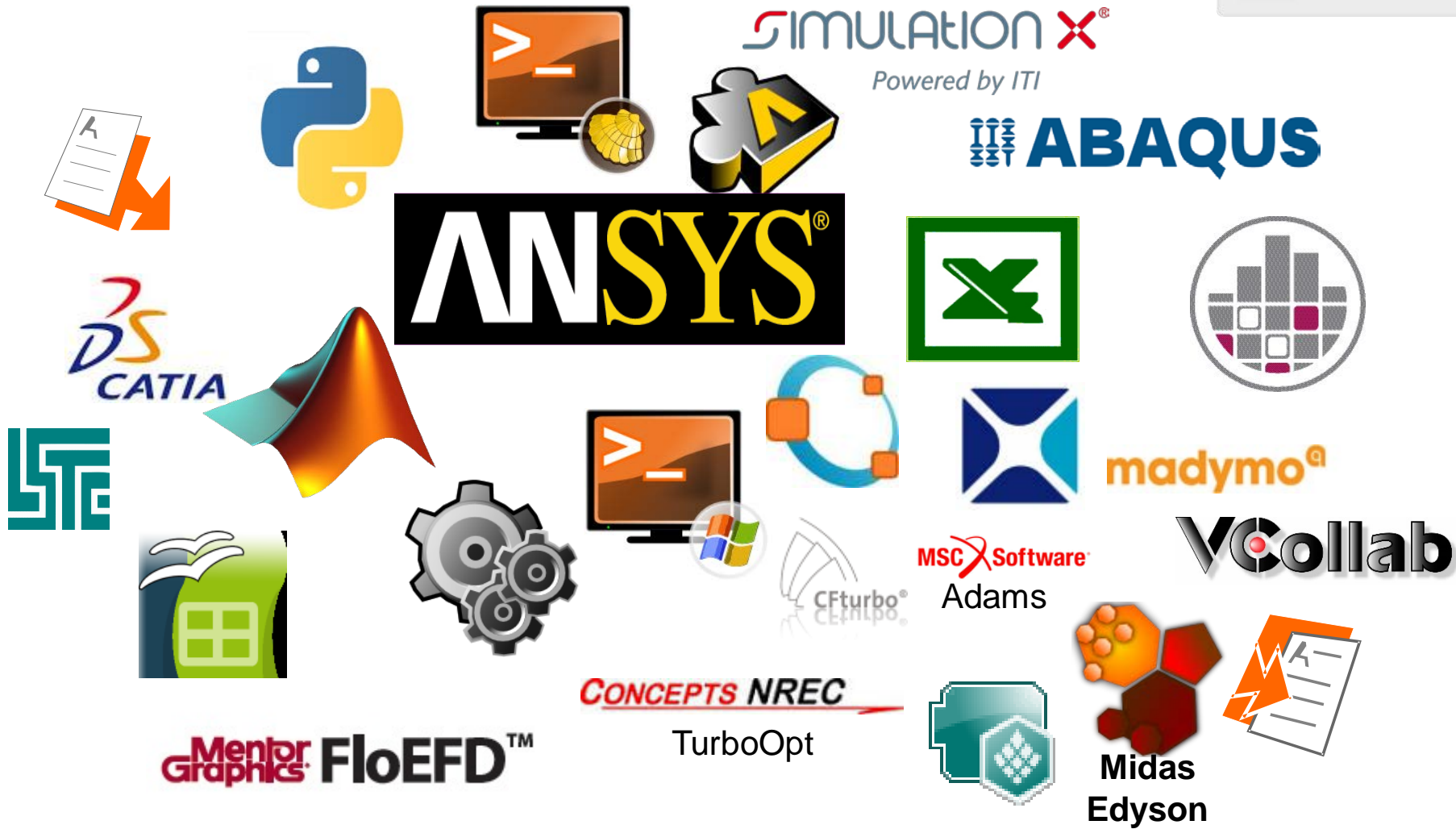


# Integrations v4.1





# Integrations v4.2



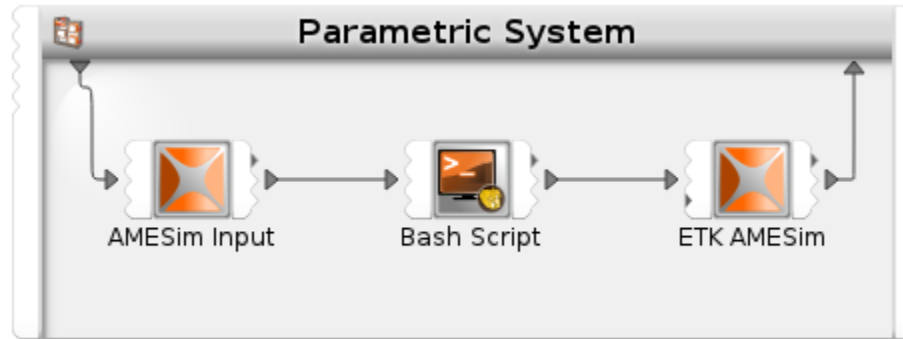




# AMESim

## “Built-In” Customization

- Get/set parameter
- Get responses (ETK)
- Python based scripting interface provided by AMESim



Parameter

cSpring 100000  
 fSpring 10  
 frict 0  
 mMass 10

Input slots

Standard slots

Show additional options   

Path: /home/kuehn/develop/sandbox/practice/amesim/data/00004/AMESimModell/AMESimModell\_.gp

Name	Title	Nominal value	Lower bound	Upper bound	Referenc
1 fSpring	Federvorspan...	10	-1e+06	1e+06	0
2 mMass	Masse des Schlitten (desi...	10	-1e+06	1e+06	0
3 frict	Friction (operation poi...	0	-1e+06	1e+06	0
4 cSpring	title	100000	-1e+06	1e+06	0
5 x0	Auslenkung fuer Federvorspan...	fSpring/cSpri...	-1e+06	1e+06	0

ETK AMESim

Variables

AMESim Model:

Name	Value
1 MAS003_1 acceleration at port 1 [m/s/s]	[1:200001]
2 MAS003_1 displacement port 1 [m]	[1:200001]
3 MAS003_1 force at port 1 [N]	[1:200001]
4 MAS003_1 velocity at port 1 [m/s]	[1:200001]
5 SPR000A_1 displacement at port 1 [m]	[1:200001]
6 SPR000A_1 displacement at port 2 [m]	[1:200001]
7 SPR000A_1 duplicate of force at port 1 [N]	[1:200001]
8 SPR000A_1 force at port 1 [N]	[1:200001]
9 SPR000A_1 spring compression [m]	[1:200001]
10 SPR000A_1 spring stiffness value [N/m]	[1:200001]
11 SPR000A_1 velocity at port 1 [m/s]	[1:200001]
12 SPR000A_1 velocity at port 2 [m/s]	[1:200001]
13 V001_1 linear acceleration (always zero) [m/s/s]	[1:200001]
14 V001_1 linear displacement [m]	[1:200001]
15 V001_1 linear velocity (always zero) [m/s]	[1:200001]

Responses

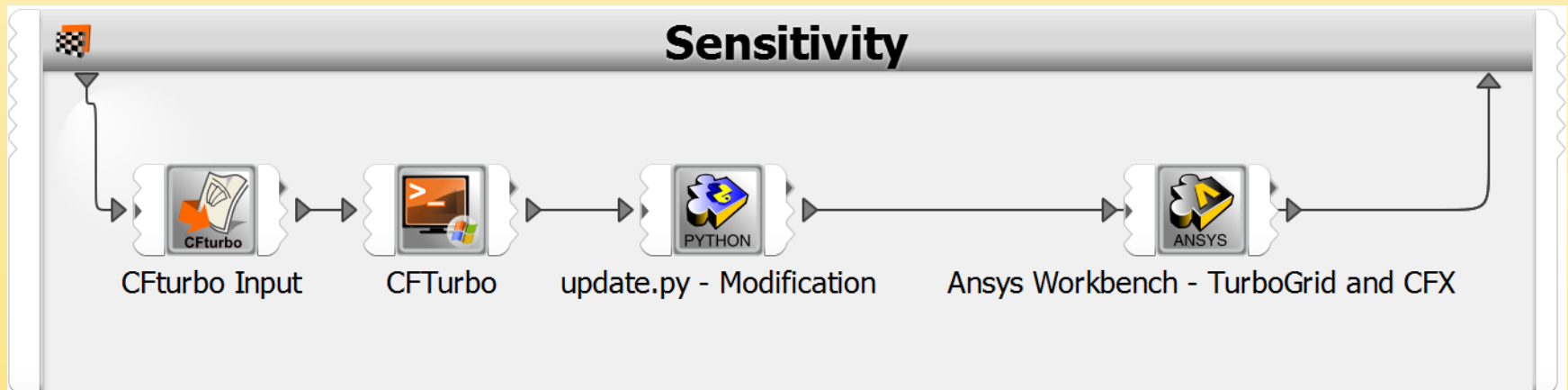
Output slots

Standard slots

Variable Name:  Use as response ▾

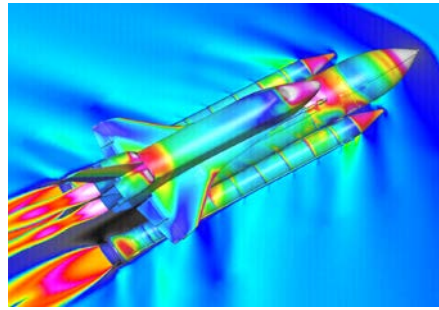
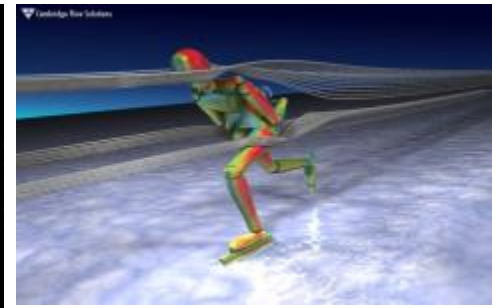
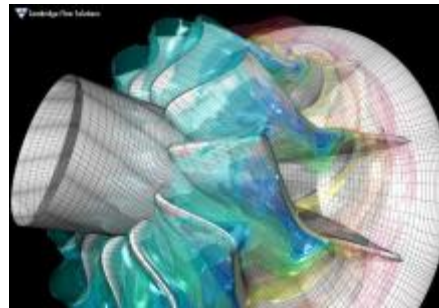
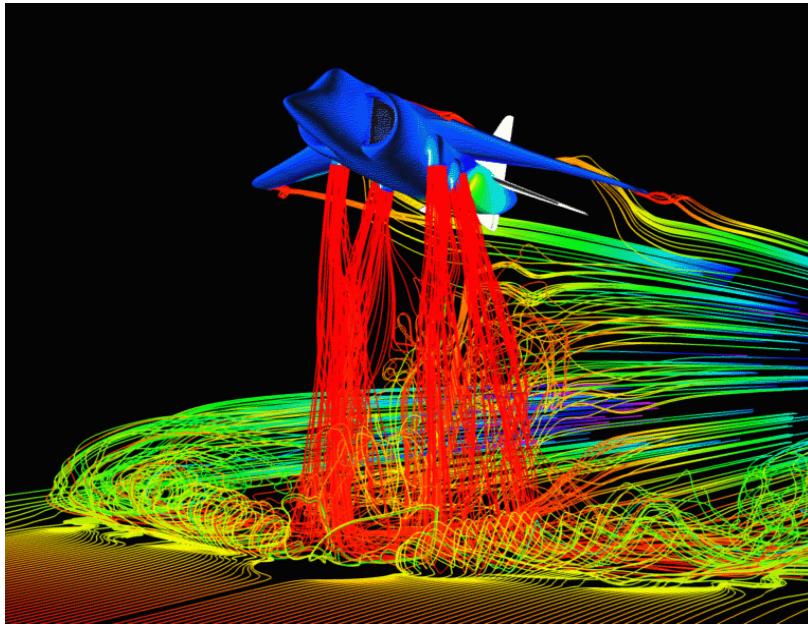
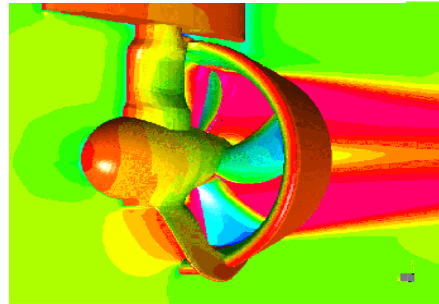
## optiSLang®

- ✓ CFturbo® is fully integrated into optiSLang® for comfortable handling
- ✓ optiSLang® is master instance and controls the workflow
- ✓ Workflow consists of:
  - CFturbo® (Turbomachinery Design)
  - ANSYS Workbench – TurboGrid (Meshing)
  - ANSYS Workbench – CFX (Simulation)



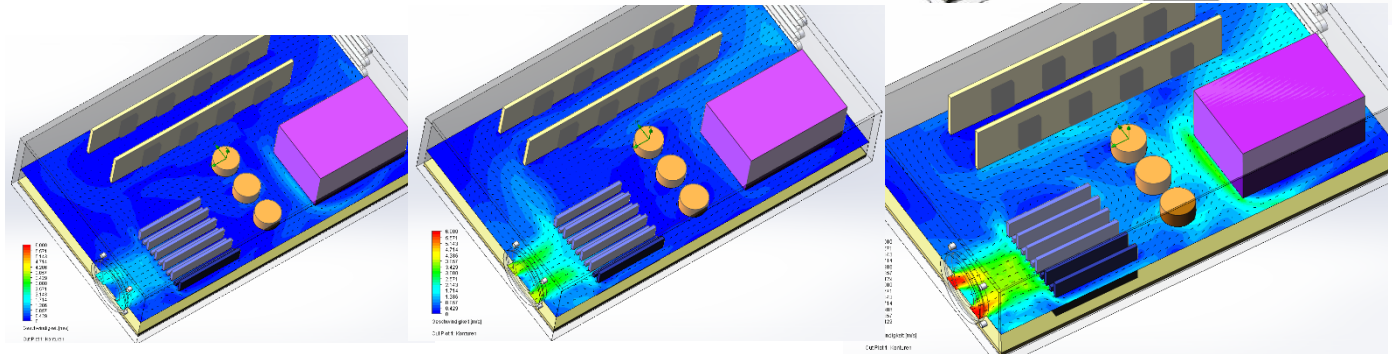
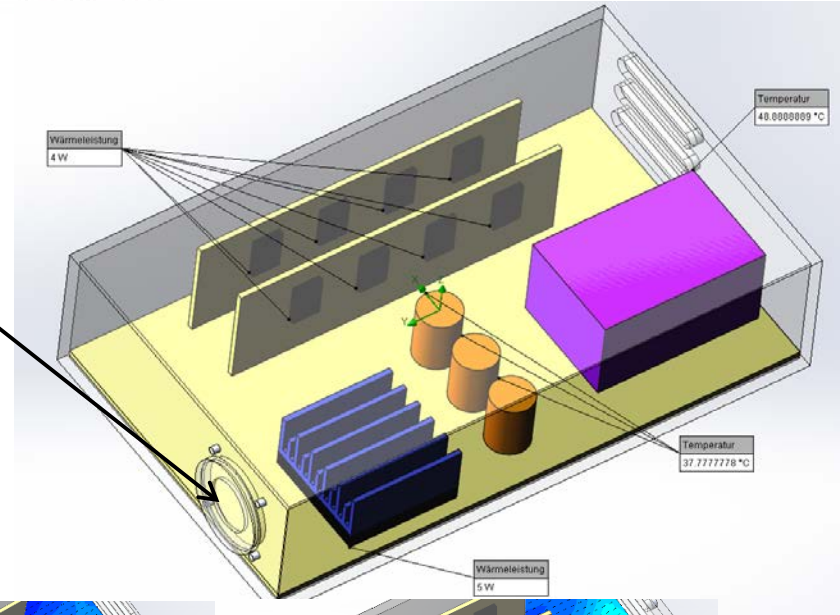
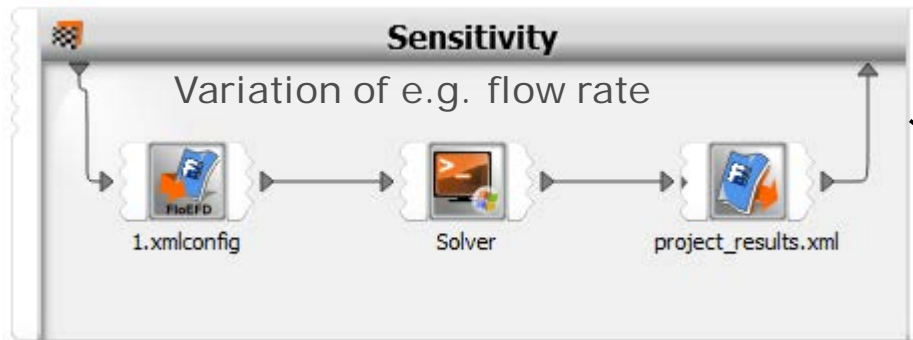
# Mentor Graphics FloEFD™

- Engineering Fluid Dynamics
  - Integrated in CAD
- Mathematical prediction of fluid flow and heat transfer



# Mentor Graphics FloEFD™

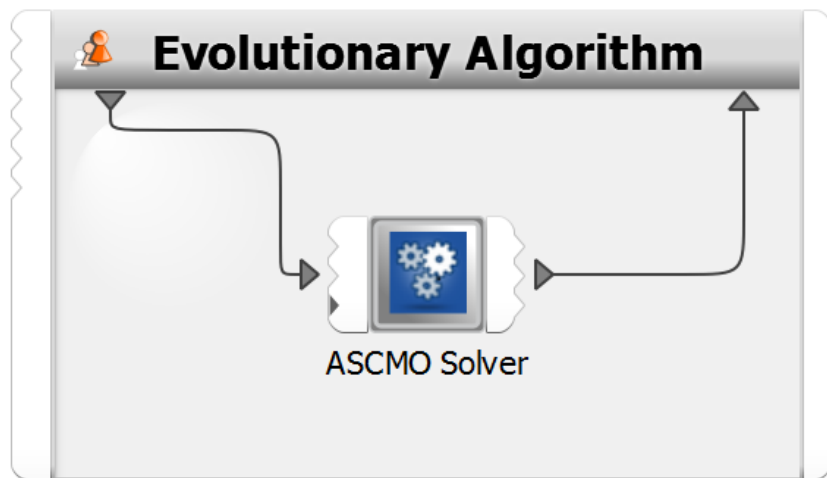
- Started with first project





## ASCMO

- from Bosch ETAS
- build very precise and robust data driven models
- based on Gaussian Processes
  - Use as option in PMOP
  - Use as Solver



PMOP (Beta)

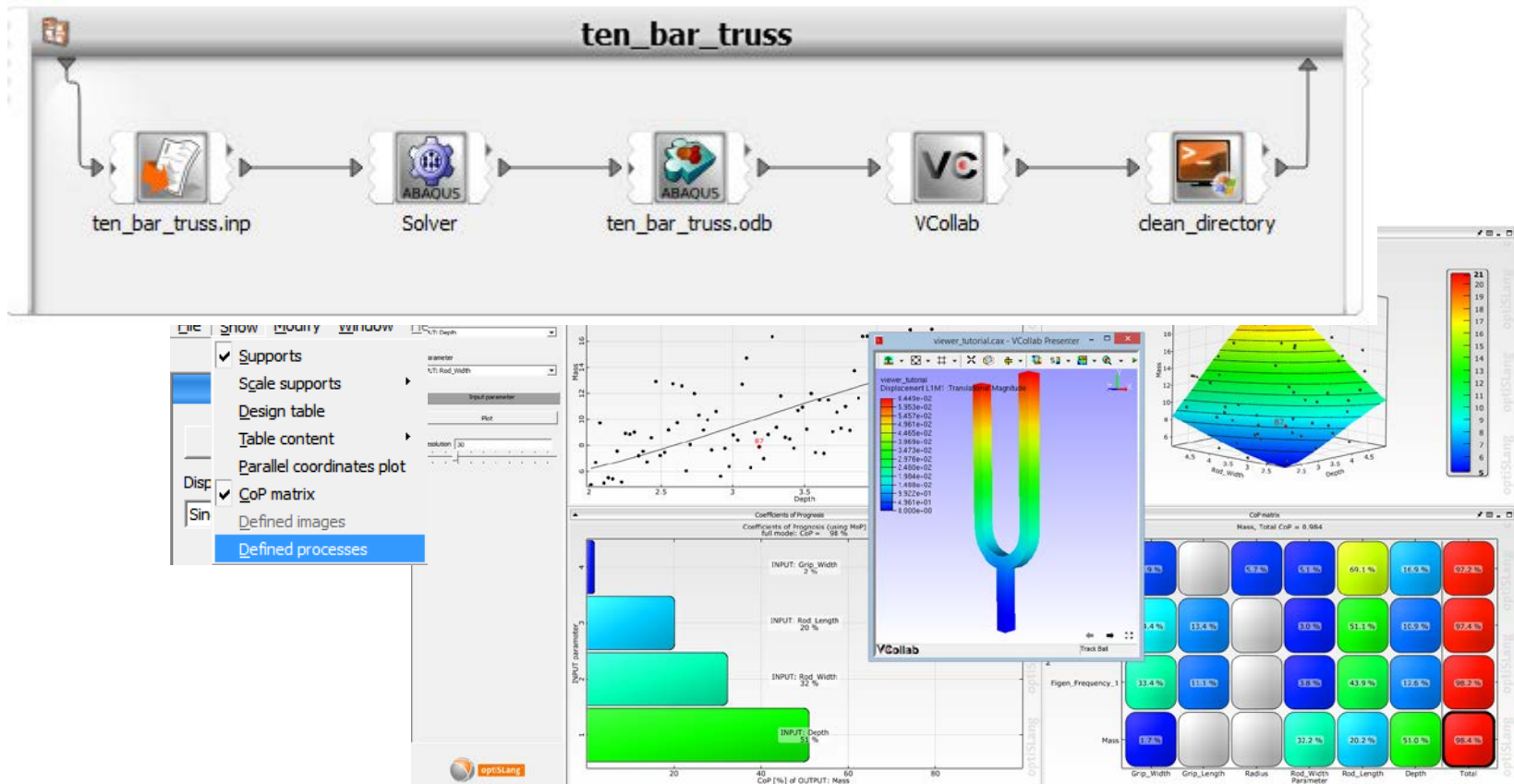
MOP settings | MOP message log

Sampling Binfile:

Property	Value
Testing type	Leave one out
Approximation type	Smoothing
Max. responses in parallel	1
CoP tolerance	
Transformation	
Models	
Polynomials	
Moving Least Squares	
Kriging	
Use	<input checked="" type="checkbox"/> True
Anisotropic	<input type="checkbox"/> False
Coefficient factor	8.00
External	
ASCMO	<input checked="" type="checkbox"/> True
Filter	
Postprocessing	
Algorithm messages	

# VCollab

- Include as postprocessor in process chain
- Show data in optiSLang Postprocessing





## Next Releases

- Robustness / Reliability
  - Joint Wizard
  - Decision tree
- RDO wizard
  - Coupled
  - Iterative
- Datamining (beta in 4.2)
- Postprocessing (beta in 4.2 PMOP-PP)
- ...

## Status quo

- Experts for
  - IT (Licensing, HPC, ...)
  - Models (CAD, FEM, CFD, ..., Excel)
  - Coupling (multiphysics, optimization)
  - ...
- Goals
  - Keep specialized (concentrate)
  - Share knowledge (benefit from teamwork)
  - Standardize & Automatize (QA + efficiency)



# optiSLang 4 PLM

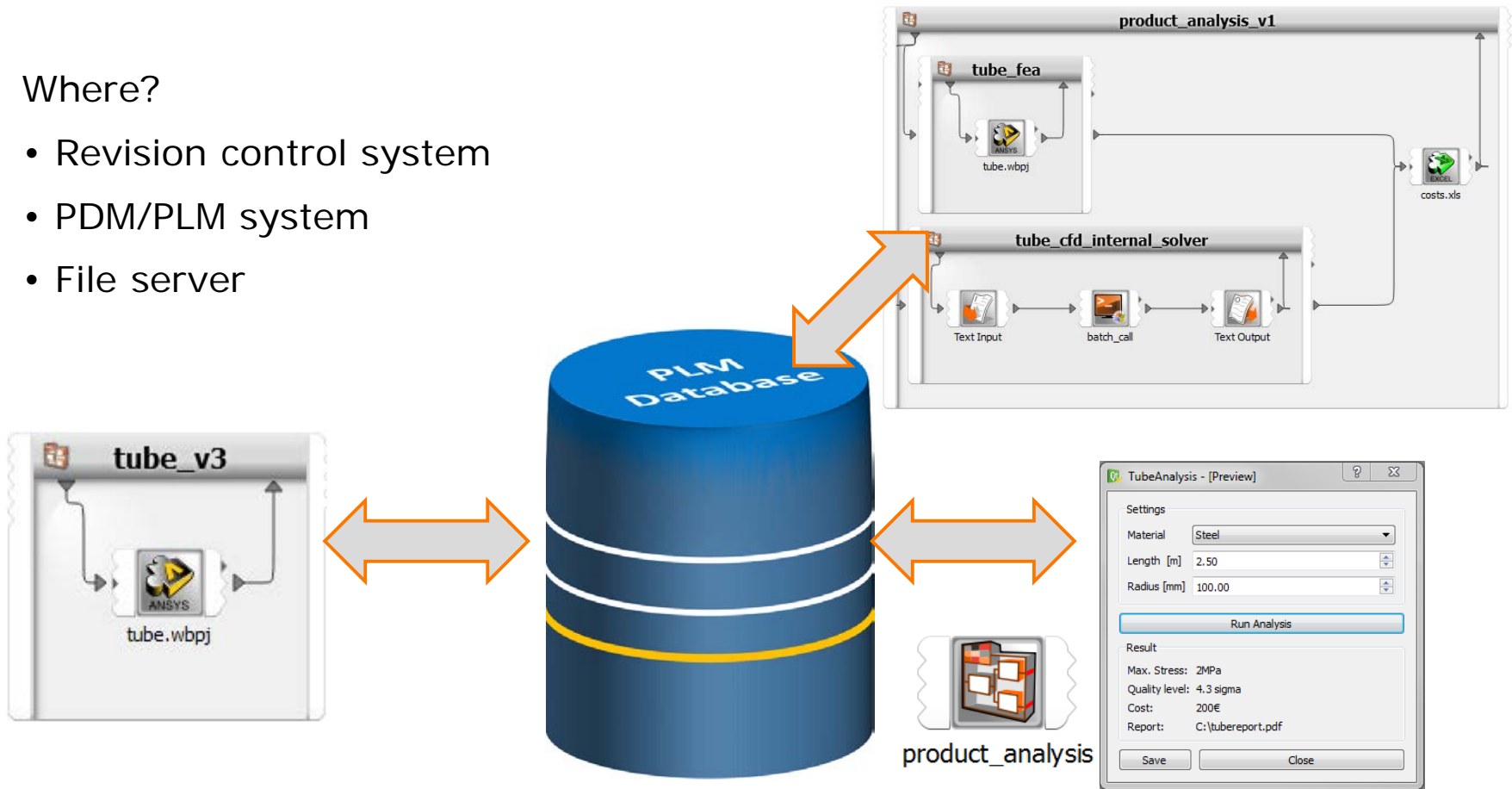


# Database

## Store optiSLang (template) projects

Where?

- Revision control system
- PDM/PLM system
- File server



## Database

### Store optiSLang (template) projects

What?

- Single system (CAE – Process)
  - Combination of systems
  - Settings
  
  - Interface
    - Regarding permissions
    - Regarding user experience
- ➔ Project level has smallest setup work



# Thank you

Need more information?

Visit our stand

Join the update workshop

Join the plenary discussion

Or contact [support@dynardo.de](mailto:support@dynardo.de)

**optiSLang is your tool**

**WOST is your user conference**

**So feel free to request, ask, propose ...**





**optiSLang – recent developments**