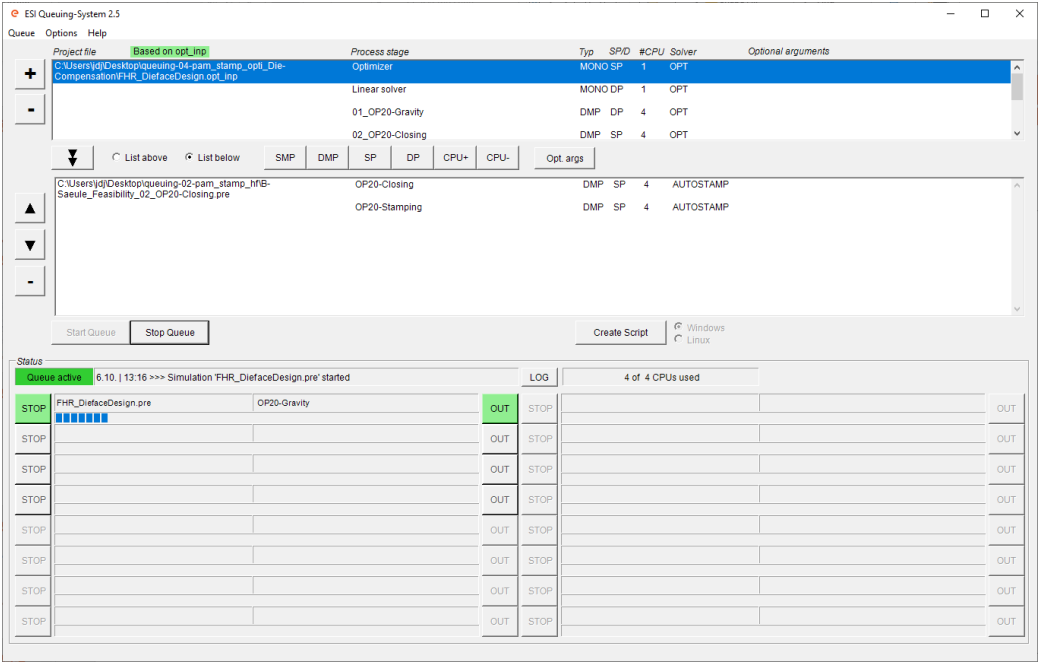


ESI Queuing-System 2.6



Documentation & Installation Guide

ESI GmbH
16.03.2022

Note

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What's new in 2.6?

- Bug-fix
 - Empty “queuestart.txt” does not cause a crash
 - Empty file is created when “esi_queue_from_gui.bat” has been executed manually
- Developments
 - Directory for the batch-file to start the job from the PAM-STAMP GUI can be customized
→ Configuration file has changed
 - Current jobs (waiting and running) are saved.
 - Can be read again, when the Queuing-System was closed

What's new in 2.5?

- PAM-STAMP optimizations are supported
- PAM-FORM is supported
- Multistage *.pc files are supported
- → Configuration file has changed

What's new in 2.4?

- Simulations can be started from middle stages
 - *.cfg file is used to set the parameters for the simulation
 - Environment variable "PS2G_BREAK_STAGE" is not used anymore

What's new in 2.3?

- No limitation to the number of cores
 - Max. number of cores can be defined freely by the user
 - ESI Queuing-System is now limited to max. 16 parallel jobs
- Support of optional arguments
 - Optional arguments for the solver-start can be given
 - E.g. for MPI binding
 - Optional arguments can be defined
 - Using the *.cfg file of the ESI Queuing-System (see slide 18)
 - Using the GUI of the ESI Queuing-System (see slide 5: “Opt. args” button in the picture)
 - Using “Additional parameters” in the host definition of the PAM-STAMP GUI (see slide 9: right picture)

Overview

1
Jobs
preparation

2
Queuing list

3
Simulations
in progress

ESI Queuing-System 2.5

Queue Options Help

+

-

▲

▼

-

Project file

Based on opt_inp

Process stage

Type

SP/D

#CPU

Solver

Optional arguments

C:\Users\jdj\Desktop\queuing-04-pam_stamp_opti_Die-Compensation\FHR_DiefaceDesign.opt_inp

Optimizer

MONO SP

1

OPT

Linear solver

MONO DP

1

OPT

01_OP20-Gravity

DMP DP

4

OPT

02_OP20-Closing

DMP SP

4

OPT

▼

List above

List below

SMP

DMP

SP

DP

CPU+

CPU-

Opt. args

C:\Users\jdj\Desktop\queuing-02-pam_stamp_hfIB-Saeule_Feasibility_02_OP20-Closing.pre

OP20-Closing

DMP SP

4

AUTOSTAMP

OP20-Stamping

DMP SP

4

AUTOSTAMP

Start Queue

Stop Queue

Create Script

Windows

Linux

Status

Queue active

6.10. | 13:16 >>> Simulation 'FHR_DiefaceDesign.pre' started

LOG

4 of 4 CPUs used

STOP

FHR_DiefaceDesign.pre

OP20-Gravity

OUT

STOP

OUT

STOP

OUT

STOP

OUT

STOP

OUT

STOP

OUT

STOP

OUT

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OUT

STOP

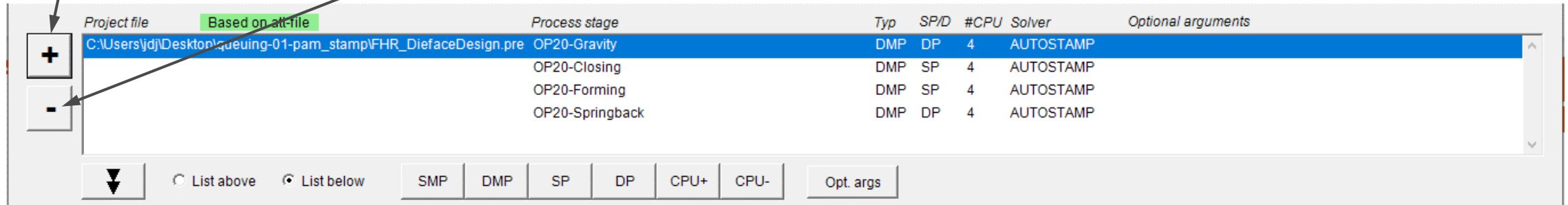
OUT

How to use it?

Job preparation

① Select simulation model

④ Delete the selected simulation model



The screenshot shows the ESI Queuing-System interface. On the left, there are two buttons: a '+' button and a '-' button. The '+' button is highlighted with a red circle and an arrow pointing to it from the text '① Select simulation model'. The '-' button is highlighted with a red circle and an arrow pointing to it from the text '④ Delete the selected simulation model'. Below these buttons is a table with the following columns: Project file, Process stage, Typ, SP/D, #CPU, Solver, and Optional arguments. The table contains four rows of data. The first row is highlighted in blue. Below the table, there are several buttons: a dropdown arrow, 'List above', 'List below', 'SMP', 'DMP', 'SP', 'DP', 'CPU+', 'CPU-', and 'Opt. args'. A bracket is drawn under the 'SMP', 'DMP', 'SP', 'DP', 'CPU+', and 'CPU-' buttons, with an arrow pointing to it from the text '② Change solver parameters for each stage'. A red circle with the number '3' is placed next to the text '③ Add simulation model to queue', with an arrow pointing to the '+' button.

Project file	Process stage	Typ	SP/D	#CPU	Solver	Optional arguments
C:\Users\jdi\Desktop\queuing-01-pam_stamp\FHR_DiefaceDesign.pre	OP20-Gravity	DMP	DP	4	AUTOSTAMP	
	OP20-Closing	DMP	SP	4	AUTOSTAMP	
	OP20-Forming	DMP	SP	4	AUTOSTAMP	
	OP20-Springback	DMP	DP	4	AUTOSTAMP	

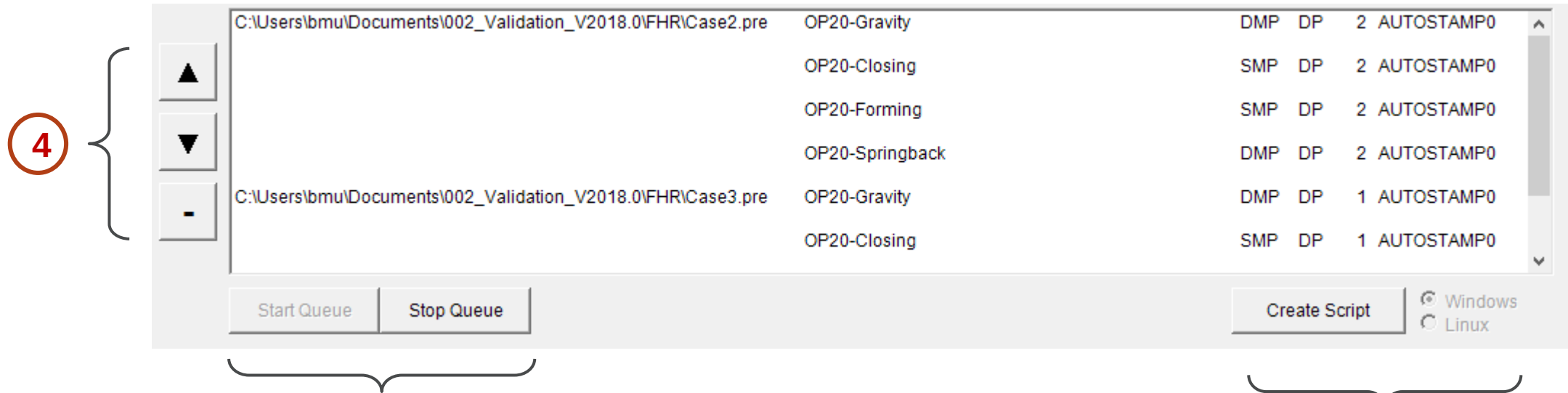
② Change solver parameters for each stage

③ Add simulation model to queue

How to use it?

Manage the queuing list

Change order or remove simulations from queue



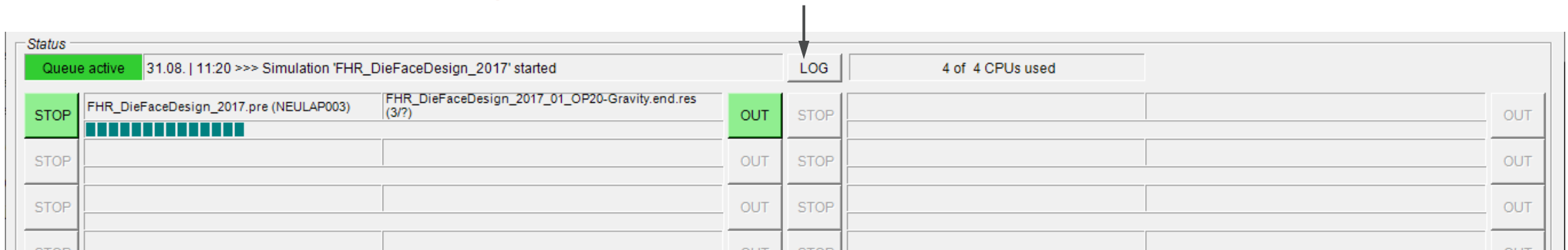
5 Start the Queue (or stop it)

Make start script
(for batch start in
Windows)

How to use it?

Control the simulation status

- ⑥ Check and follow the total progress displayed



Status	
Queue active 31.08. 11:20 >>> Simulation 'FHR_DieFaceDesign_2017' started	
LOG 4 of 4 CPUs used	
STOP	FHR_DieFaceDesign_2017.pre (NEULAP003) FHR_DieFaceDesign_2017_01_OP20-Gravity.end.res (3/?)
STOP	
STOP	
STOP	
STOP	

Status of up 16 Jobs (no limitation in CPUs/Cores)

STOP → stop simulation (.rst and .end.res are written)

OUT → shows out-file

Example at runtime

ESI Queuing-System 2.5

Queue Options Help

+

-

▲

▼

-

Project file

Based on opt_inp

Process stage

Typ

SP/D

#CPU

Solver

Optional arguments

C:\Users\jdi\Desktop\queuing-04-pam_stamp_opti_Die-Compensation\FHR_DiefaceDesign.opt_inp

Optimizer

MONO SP

1

OPT

Linear solver

MONO DP

1

OPT

01_OP20-Gravity

DMP DP

4

OPT

02_OP20-Closing

DMP SP

4

OPT

▼

List above

List below

SMP

DMP

SP

DP

CPU+

CPU-

Opt. args

C:\Users\jdi\Desktop\queuing-02-pam_stamp_hfB-Saeule_Feasibility_02_OP20-Closing.pre

OP20-Closing

DMP SP

4

AUTOSTAMP

OP20-Stamping

DMP SP

4

AUTOSTAMP

Start Queue

Stop Queue

Create Script

Windows

Linux

Status

Queue active

6.10. | 13:16 >>> Simulation 'FHR_DiefaceDesign.pre' started

LOG

4 of 4 CPUs used

STOP

FHR_DiefaceDesign.pre

OP20-Gravity

OUT

STOP

OUT

STOP

OUT

STOP

OUT

STOP

OUT

STOP

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OUT

STOP

OUT

Adding simulations to queue from PAM-STAMP

Definition of hosts

- Necessary host declaration:

The 'Computation host' dialog box, Machine tab. The 'Label for this host' field contains 'queueing_2p5'. The 'Configuration' section has tabs for Machine, Solver, DMP, and Launch. Under the Machine tab, the 'Host' section has radio buttons for 'Local' (selected), 'Network', 'By address', and 'By name'. The 'Operating system' section has radio buttons for 'Windows (32-bit)', 'Windows (64-bit)' (selected), 'Unix/Linux', and 'Windows (64-bit) cluster'.

The 'Computation host' dialog box, Solver tab. The 'Label for this host' field contains 'queueing_2p5'. The 'Configuration' section has tabs for Machine, Solver, DMP, and Launch. Under the Solver tab, the 'Solver type' dropdown is set to 'PamStamp solver'. The 'Parallelism model' section has radio buttons for 'Mono', 'Shared (SMP)', and 'Distributed (DMP)' (selected). The 'Precision' section has radio buttons for 'Single precision' (selected) and 'Double precision'.

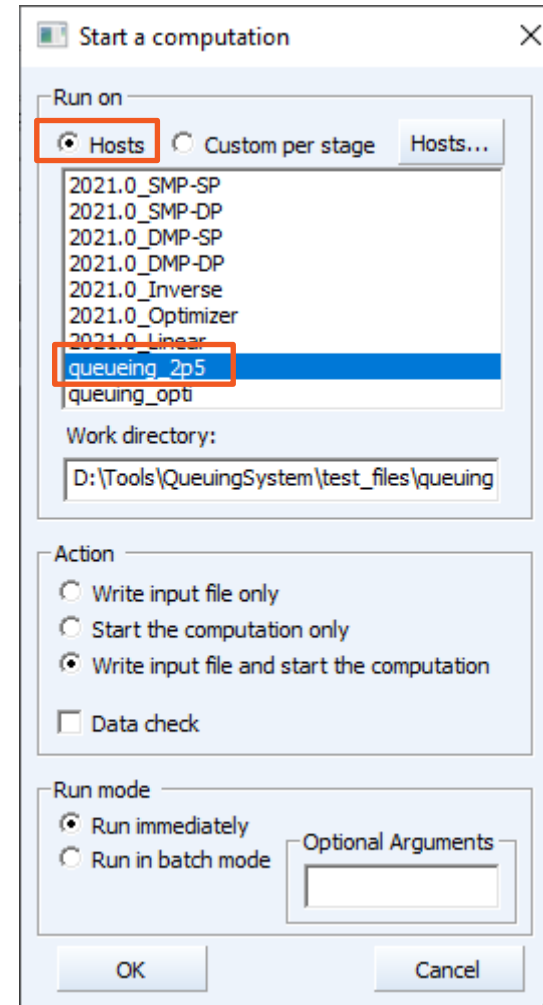
The 'Computation host' dialog box, Launch tab. The 'Label for this host' field contains 'queueing_2p5'. The 'Configuration' section has tabs for Machine, Solver, DMP, and Launch. Under the Launch tab, the 'Solver's launcher' field contains 'ts\Code\ESI Queuing-System\bin\esi_queue_from_gui.bat'. The 'Optional command line arguments' field is empty. The 'Start mode' dropdown is set to 'Direct (local execution)'. There is an 'Environment variables ...' button.

- The file „esi_queue_from_gui.bat“ located in C:\Program Files\ESI Group\ESI_Queueing-System_2.5
- Generated automatically with the first call of the Queuing-System

Adding simulations to queue from PAM-STAMP

Starting the simulation

- Starting a normal simulation
 - Select “Run on Hosts”
 - Select the host for the Queuing-System
 - Klick on “OK”
 - Simulation will be added to the queue
 - Queuing-System must be running
 - Queue has to be started



Adding simulations to queue from PAM-STAMP

Definition of hosts (for Optimization)

- Necessary host declaration for **Optimizations**:

The 'Computation host' dialog box is shown with the 'Machine' tab selected. The 'Label for this host' field contains 'queuing_opti'. The 'Configuration' section has three sub-tabs: 'Machine', 'Solver', and 'Launch'. Under the 'Machine' sub-tab, there are two sections: 'Host' and 'Operating system'. In the 'Host' section, 'Local' is selected with a radio button, and 'By address' is selected with a radio button. In the 'Operating system' section, 'Windows (64-bit)' is selected with a radio button.

The 'Computation host' dialog box is shown with the 'Solver' tab selected. The 'Label for this host' field contains 'queuing_opti'. The 'Configuration' section has three sub-tabs: 'Machine', 'Solver', and 'Launch'. Under the 'Solver' sub-tab, there are two sections: 'Solver type' and 'Parallelism model'. In the 'Solver type' section, 'Optimizer' is selected in the dropdown menu. In the 'Parallelism model' section, 'Mono' is selected with a radio button.

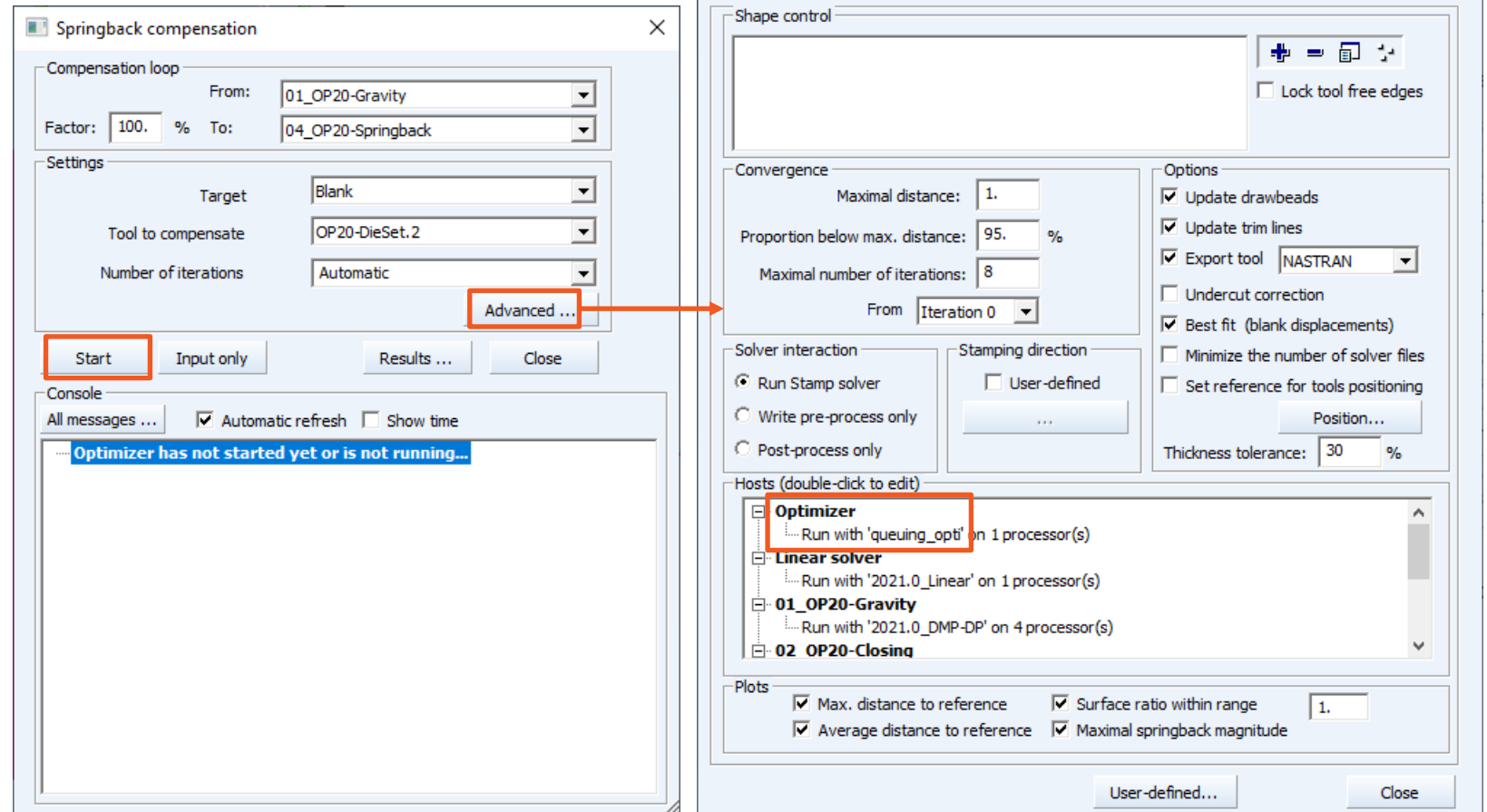
The 'Computation host' dialog box is shown with the 'Launch' tab selected. The 'Label for this host' field contains 'queuing_opti'. The 'Configuration' section has three sub-tabs: 'Machine', 'Solver', and 'Launch'. Under the 'Launch' sub-tab, there are three sections: 'Solver's launcher', 'Optional command line arguments', and 'Start mode'. In the 'Solver's launcher' section, the path 'ts\Code\ESI Queuing-System\bin\esi_queue_from_gui.bat' is entered. In the 'Optional command line arguments' section, there is an empty text field. In the 'Start mode' section, 'Direct (local execution)' is selected in the dropdown menu.

- The file „esi_queue_from_gui.bat“ located in C:\Program Files\ESI Group\ESI_Queueing-System_2.5
- Generated automatically with the first call of the Queuing-System

Adding simulations to queue from PAM-STAMP

Starting the simulation (for Optimization)

- Starting an **Optimization**
 - Select the queuing host as Optimizer
 - Under “Advanced”
 - Click on “Start” to add the optimization to the queue
- By click on “Input only” the input file is written
→ can be added to the queue via the GUI of the Queuing-System



Supported platforms

- Windows 7 (32/64 Bit)
- Windows 10 (32/64 Bit)

Requirement and known issues

- Queuing-System (GUI and queueprocess) must run on the solvermachine
- Other computers, on which simulation data is located or from which simulations are queued, must be connected via a networkdrive
- Microsoft .NET Framework Version 1.1 combined with SP 1
- Sending of messaging mails is not supported for current version
- *..requires, that the SMTP-Server on the solver machine must be reachable without authentication*
- Each simulation model needs its own directory
- Management of up to 16 Jobs possible
- Long path names of simulation models or directories might not be displayed or truncated in the GUI
- Be administrator of the machine and have User Access Control (UAC) deactivated
- Each job needs its own directory

Installation

How to install

- Execute the ESI_Queueing-System_2.5_setup.exe file
 - Adapt the configuration file (see next slides) with the right paths and other parameters
 - Log off your session to initialize the environment variables
 - Log in again
 - Right click on the tool shortcut in Desktop, and select Run as Admin
-
- The batch-files for the host definition are only available after the Queuing-System has been started once!

Installation

Configuration file (1)

NUMBER_OF_CORES | 4

Number of available CPUs/Cores

NUMBER_OF_LICENSES | 4

Number of available solver licenses

DEFAULT_NUMBER_OF_THREADS | 1

Default number of CPUs/Cores for the solver start

WINDOWS_SOLVER_NOR | C:\Program Files\ESI Group\PAM-STAMP
 \2021.0\Binary-64Bit\Solver\bin\pamstamp.bat

WINDOWS_SOLVER_LINEAR | C:\Program Files\ESI Group\PAM-STAMP
 \2020.5\Binary-64Bit\Optimizer\LinearSolver.bat

WINDOWS_SOLVER_OPTI | C:\Program Files\ESI Group\PAM-STAMP
 \2020.5\Binary-64Bit\Optimizer\Optimizer.bat

Default start files of the PAM-STAMP-Solvers

Installation

Configuration file (2)

not used

PAM-CRASH_SOLVER_NOR | C:\Programs\ESI Group\Virtual-Performance
 \2020.5\Solver\bin\pamcrash.bat

not used

PAM-FORM_SOLVER_NOR | C:\Program Files\ESI Group\PAM-COMPOSITES
 \2021.0\Solver\bin\pamform.bat

Files of the PAM-CRASH-Solver and the PAM-FORM-Solver

Installation

Configuration file (3)

WINDOWS_SCRIPTEXPORT_DIR | C:\

Directory for the export of Windows-Batch files

WINDOWS_NETWORKDRIVE | Z:\

On the Solvermachine declared Networkdrives; all simulation models from external drives will be copied to local...

WINDOWS_NETHOSTS | Host_1 | C: | Z:

Hostname and related drive name equivalents

The drive name of simulation models submitted into the queue with a hostname (via PS2G-GUI), will be switched (here: C: by Z:)

Then the Queuing-System recognizes the host submitted simulation model as located on the net and copies the same to local...

Installation

Configuration file (4)

QUEUE_SLEEP_TIME | 5000

Time interval in ms for Queue update

QUEUE_MAIL_MESSAGE | NO

Sending of messaging mail not activated. Not supported in this version

QUEUE_MAIL_SMTP | mail.domain.de

Name of the default SMTP-Server on the solvermachine

QUEUE_MAIL_ADRESS | Host_1 | user_1@domain.de

Hostname and related mailaddress (one mailaddress per host)

Installation

Configuration file (5)

LINUX_SOLVERALIAS_STAMP		pamstamp
LINUX_SOLVERALIAS_CRASH		pamcrash
LINUX_SOLVERALIAS_FORM		pamform
LINUX_SOLVERALIAS_LINEAR		pamstamp_lin
LINUX_SOLVERALIAS_OPTI		pamstamp_opt

Alias for the Linux-Solvers

(Necessary only for the making of Linux-Batchfiles, but not supported in this version)

LINUX_FOLDER_EQUIVALENCES		Z:\		/home/user_1/
---------------------------	--	-----	--	---------------

Folder equivalences for connected Linux-machine via networkdrive

(Necessary only for the making of Linux-Batchfiles, but not supported in this version)

DEFAULT_OPT_ARGUMENT		--help
----------------------	--	--------

Default optional argument for the solver-start e.g., for MPI bindings

(--help only prints the solver-help but does not start the simulation)

Installation

Configuration file (6)

GUI_BATCH_DIRECTORY | V:\queuing_system\

Path for the batch-file, which is used to start a job from PAM-STAMP GUI

Default value is installation directory for the Queuing-System

Can be useful, if the Queuing-System is on a Server. Then this file should be in a network drive.