



GATE-Lab



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Introduction

The GATE-Lab is a user-friendly interface designed to provide easy and reliable execution on the grid of the GATE¹ software to radiation therapy researchers. It is composed of a MOTEUR²-based web server and a Java client using VBrowsers³ as a GUI to the LFC. Starting from a single user interaction which indicates the main simulation macro file, the GATE-Lab searches for and sends all the needed inputs to the grid. It then handles task creation, submission and load-balancing. It monitors the simulation until completion, retrieves and merges the outputs into a location accessible with a simple URL and keeps track of the simulations history.

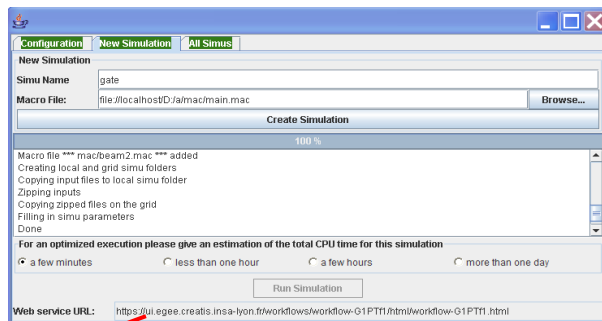


Fig 1 – GATE-Lab Client interface

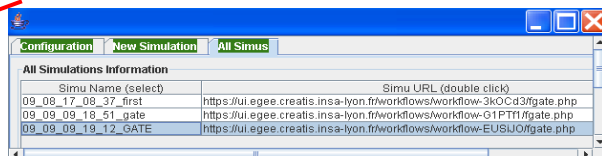


Fig 2 – Gate-Lab Client simulations history list

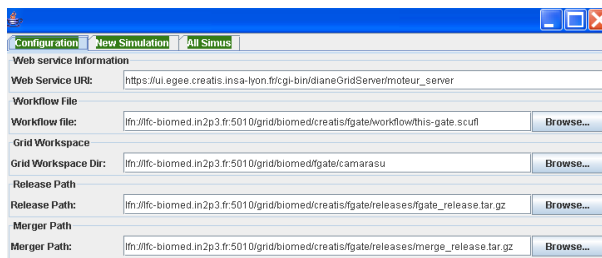


Fig 3 – Gate-Lab Client configuration



Fig 4 – Monitoring interface



GATE-Lab Server

- Launches workflow engine
- Starts DIANE⁴ master and agents
- Monitors the simulation
- Retrieves and merges GATE outputs into a location accessible with a simple URL

GATE-Lab Client -VBrowsers plugin-

- Parses simulation main file
- Zips inputs and stores them on the grid
- Allows for the release selection
- Submits simulation workflow
- Keeps track of simulations history

Results

- One-click interface
- Automated simulation splitting and load balancing
- Automated failure management

Perspectives

- Make the GATE-Lab available for research teams worldwide
- Extend it to other computing architectures (GPUs)
- Extend it to other Monte-Carlo applications

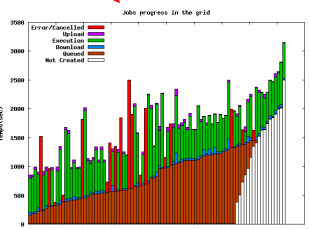


Fig 5 – Detailed job statistics

Actions	User	MASTERS				AGENTS				TASKS				
		Date launched	Workspace	Port	Alive	Submitted	Running	Registered	Removed	Submitted	Scheduled	Running	Done	Failed
Kill	Sorina Camarasu/	Sep 9 18:52	/var/www/diane/Runs/0459	23005	true	8	4	1	1	0	0	0	0	0
Kill	Tristan Glatard/	Sep 8 18:17	/var/www/diane/Runs/0458	23004	true	88	0	0	0	0	0	0	0	0
Cleanup	Ching Chuen Teck Iark/	Aug 5 11:14	/var/www/diane/Runs/0435	23003	false	0	0	0	0	0	0	0	0	0

Fig 5 – DIANE monitoring dashboard

¹ <http://opengatecollaboration.healthgrid.org>, ² <http://modalis.polytech.unice.fr>, ³ <http://staff.science.uva.nl/~silvia/vlmed>, ⁴ <http://cern.ch/diane>