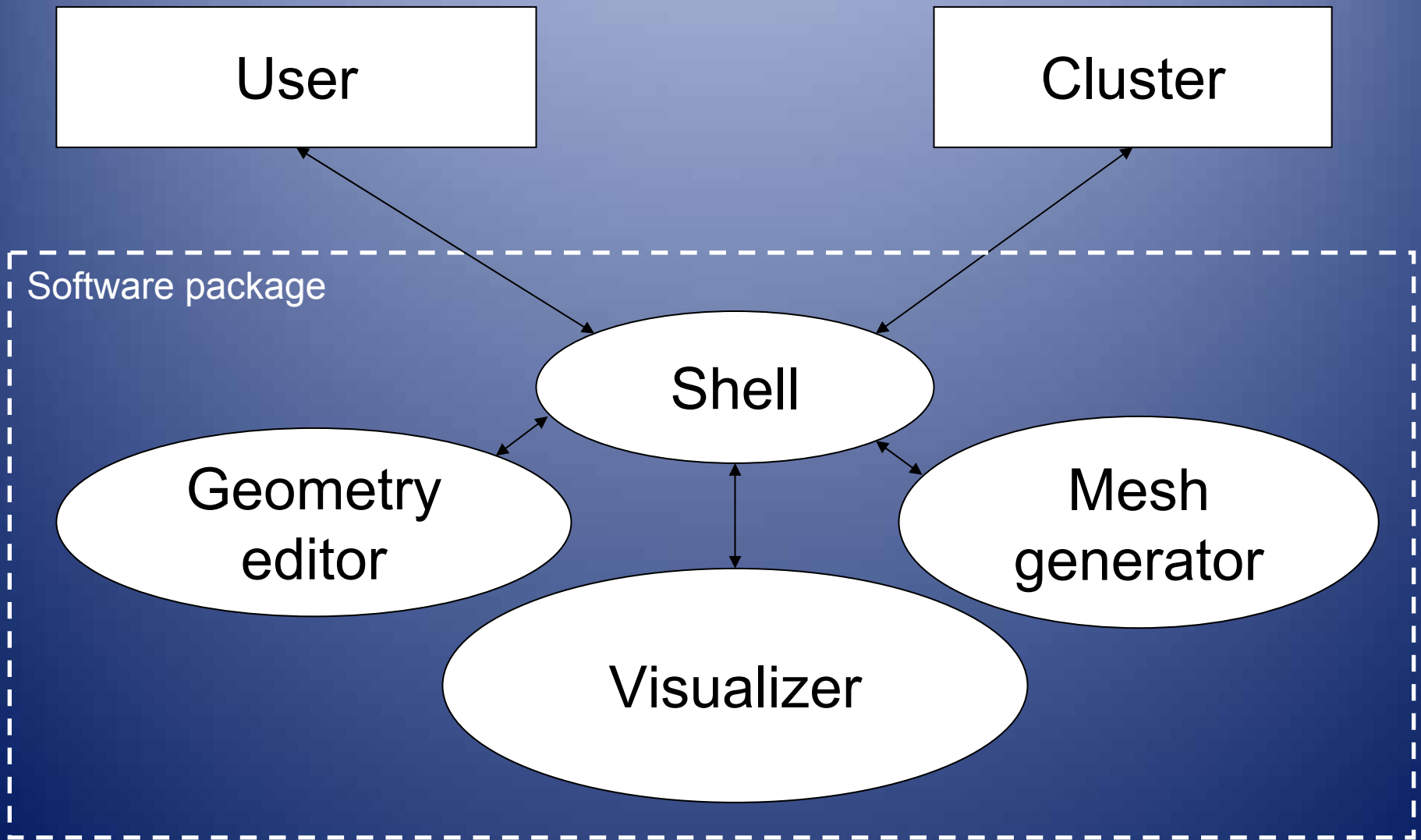


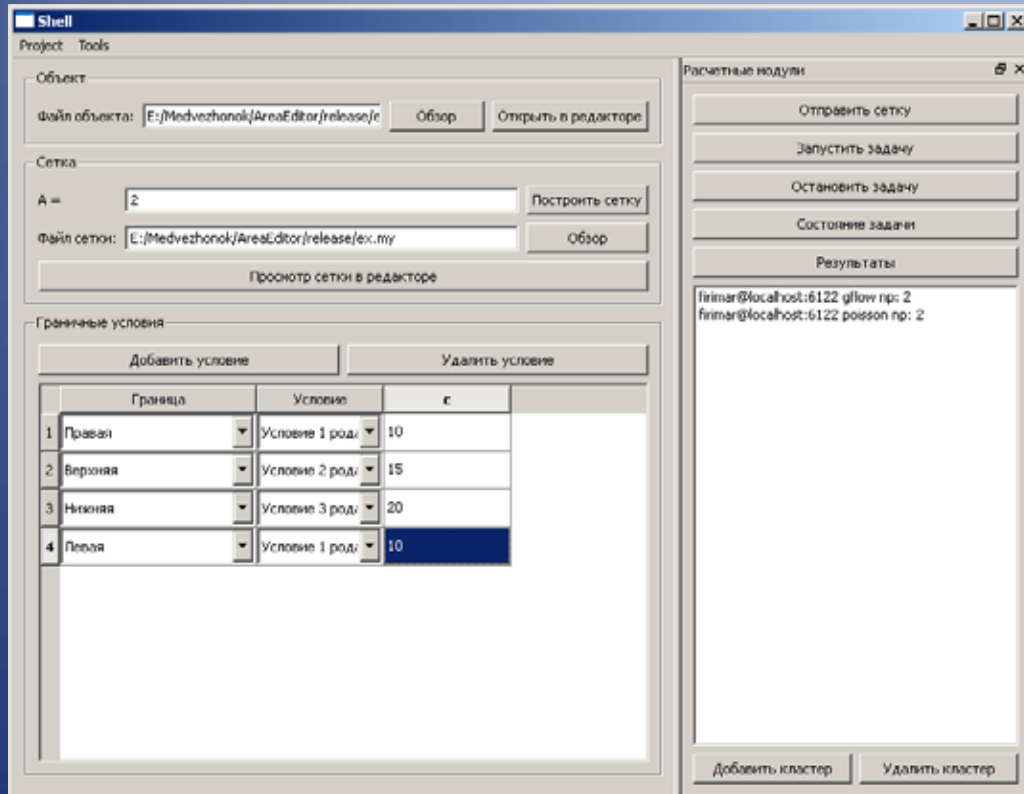
# Software Package for Modeling Problems of Mechanics of Continua Using Modern Multiprocessor Systems

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# Scheme of package components' interaction



# Shell



## Functions:

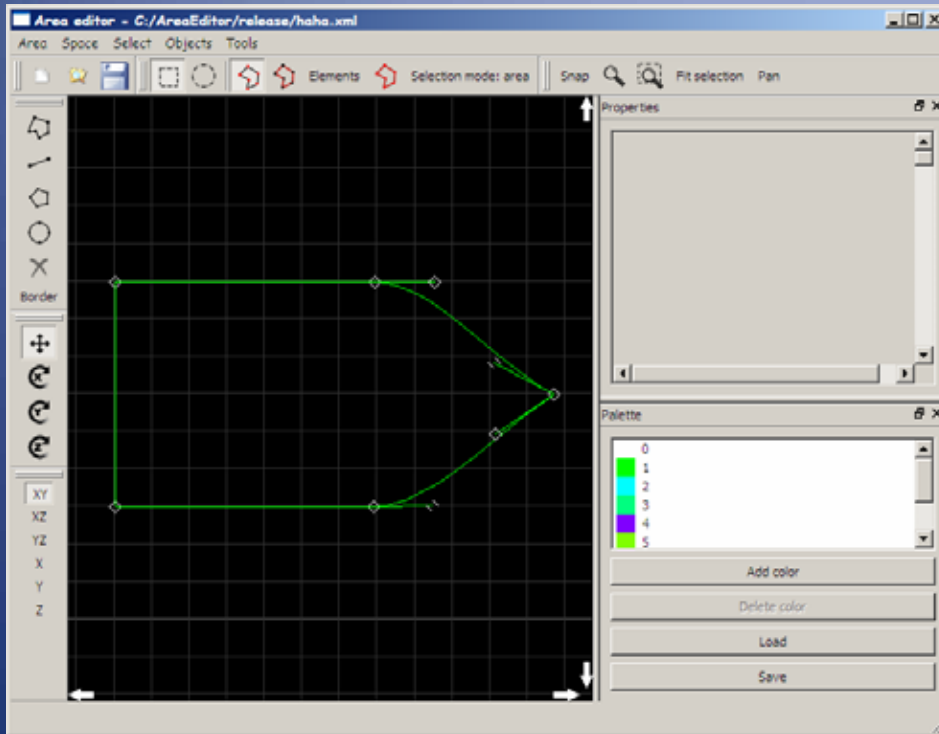
- Organization of problem solving process from beginning to end
- Integration of all other components in one interface
- Organization of interaction between software package and clusters
- Organization of data exchange between all components of the package

# Stages of problem solving process

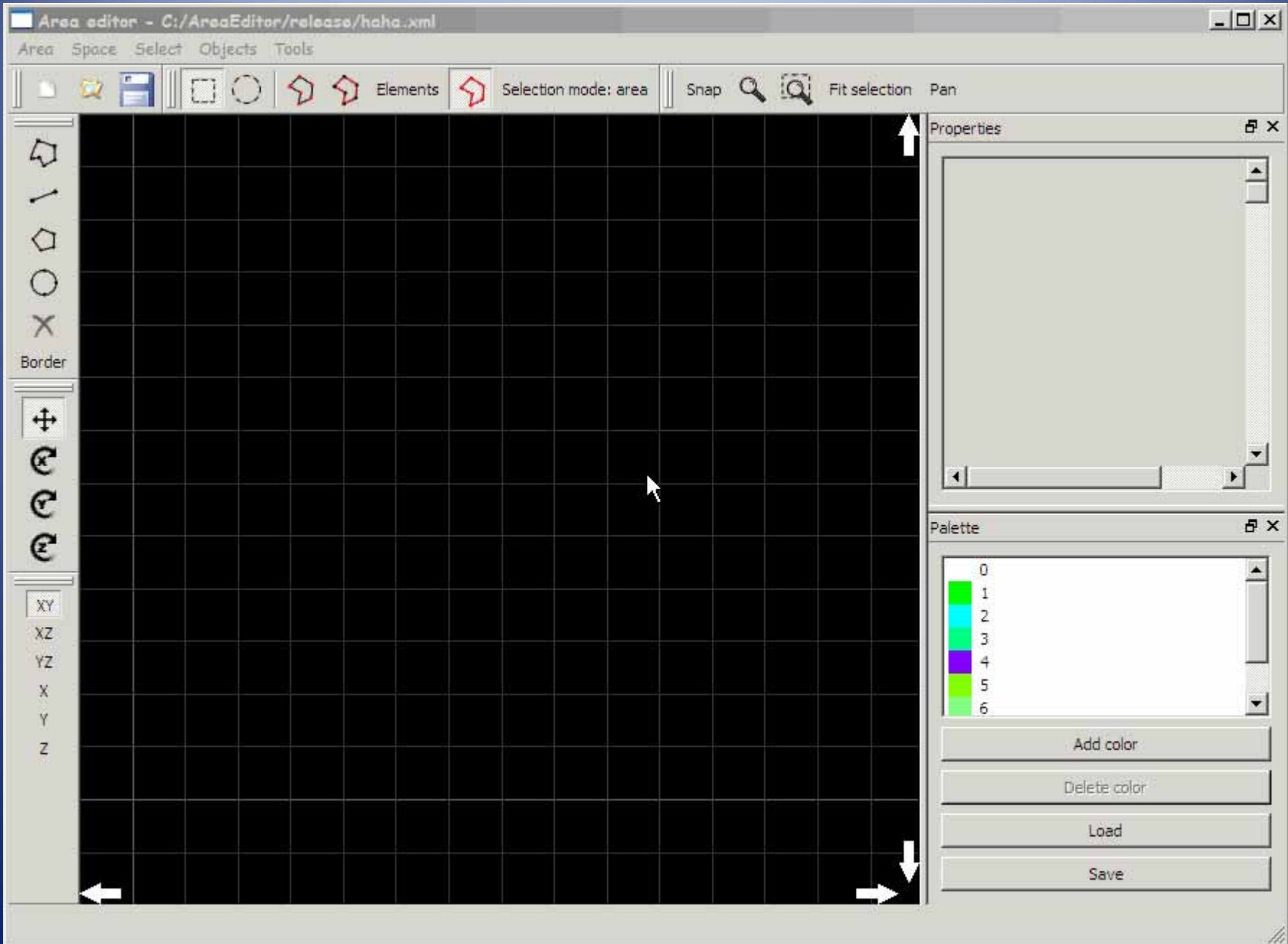
1. Defining geometry of an object and solution area
2. Grid generation
3. Setting boundary conditions
4. Running computation on cluster
5. Retrieving and viewing results

# Stage 1: Defining geometry

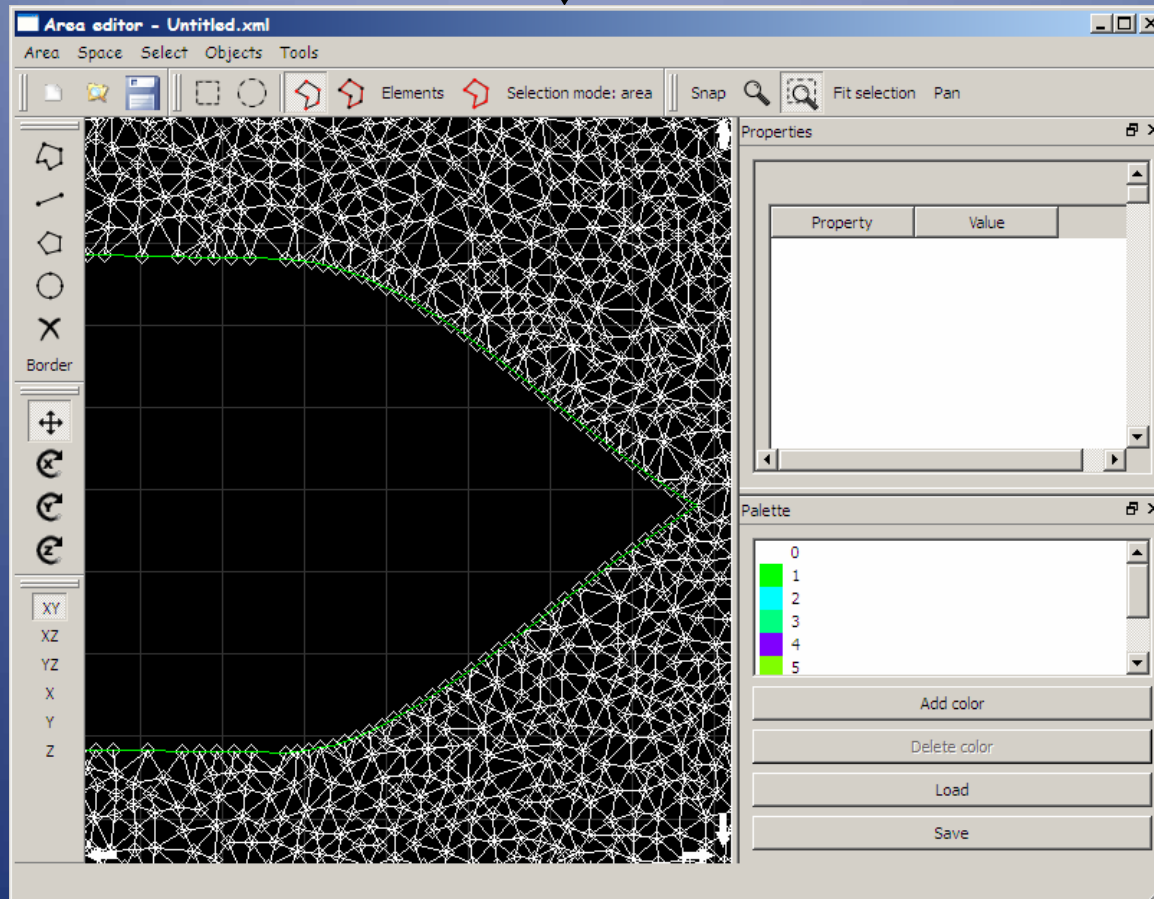
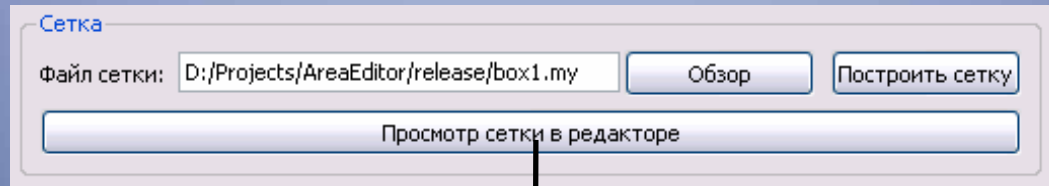
## Geometry editor

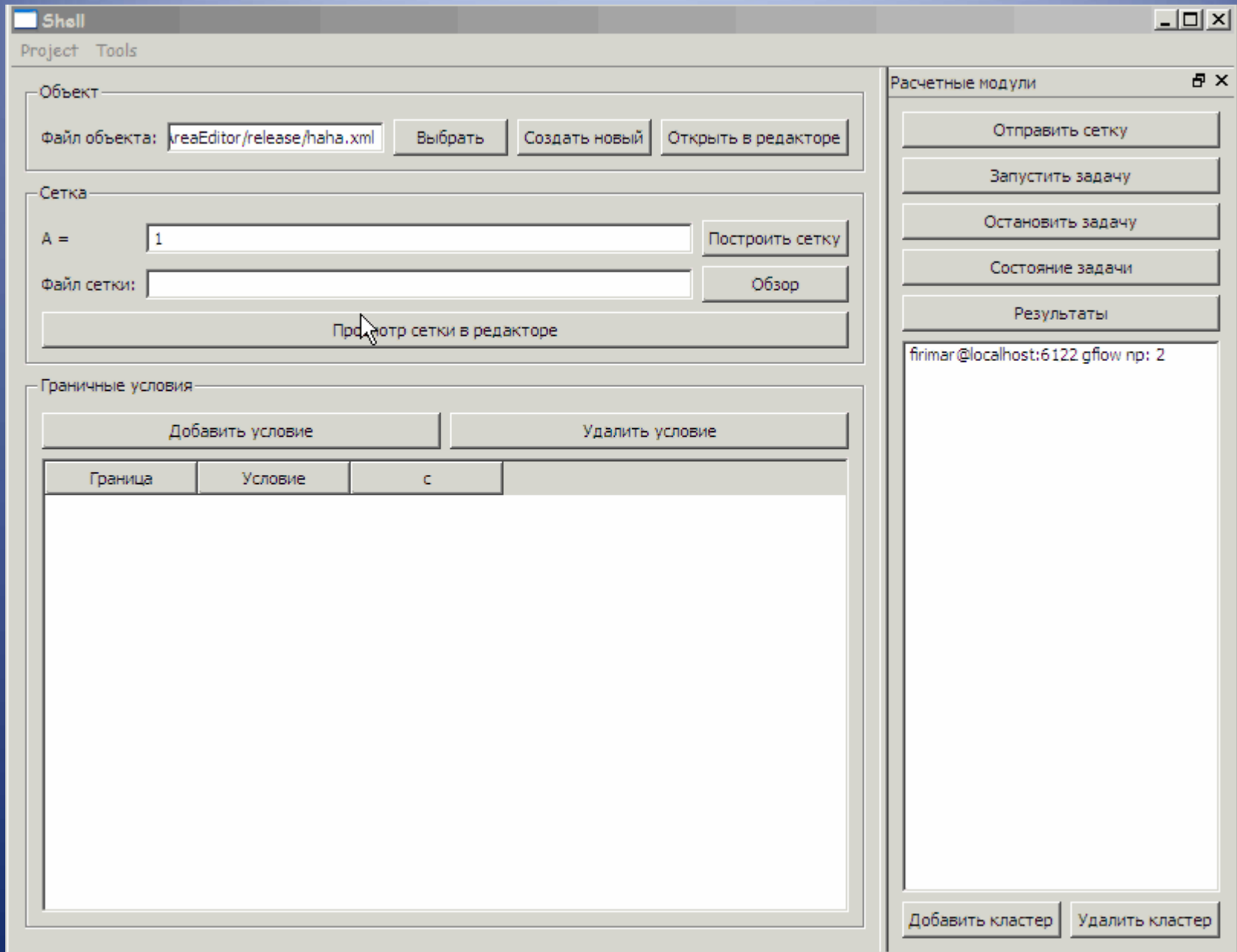


- Creation/editing of solution area's geometry
- Import of objects from external files
- Export into file in one of the popular formats



# Stage 2: Grid generation







# Stage 3: Setting boundary conditions

Граничные условия

Добавить условие      Удалить условие

	Граница	Условие	c
1	Левая	Условие 1 рода ( $y = c$ )	10
2	Верхняя	Условие 2 рода ( $dy/dn = c$ )	15
3	Правая	Условие 3 рода ( $dy/dn = cy$ )	10
4	Нижняя	Условие 1 рода ( $y = c$ )	20

3 types of boundary conditions:

1. ( $y = c$ )
2. ( $dy/dn = c$ )
3. ( $dy/dn = cy$ )

c – specified constant,  
n – external solution area's  
normal

# Stage 4: Running computation on cluster

Clusters list

firimar@localhost:6122 gflow np: 2  
firimar@localhost:6122 poisson np: 2

Добавить кластер    Удалить кластер

Cluster registration

Новый кластер

Адрес:

Порт: 22

Пользователь:

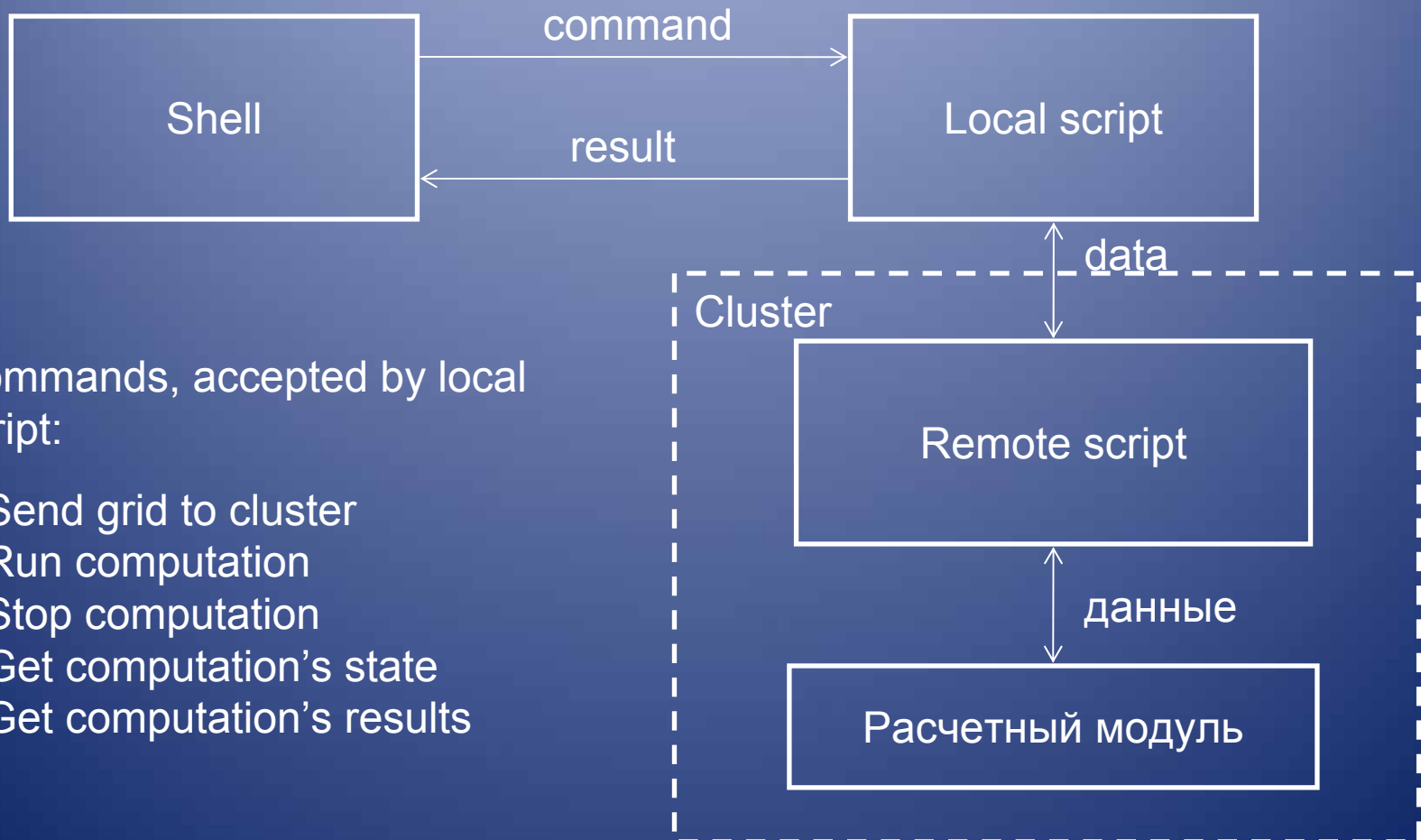
Пароль:

Расчетный модуль:

Кол-во процессоров: 2

OK    Отмена

# Stage 4: Running computation on cluster



Commands, accepted by local script:

1. Send grid to cluster
2. Run computation
3. Stop computation
4. Get computation's state
5. Get computation's results

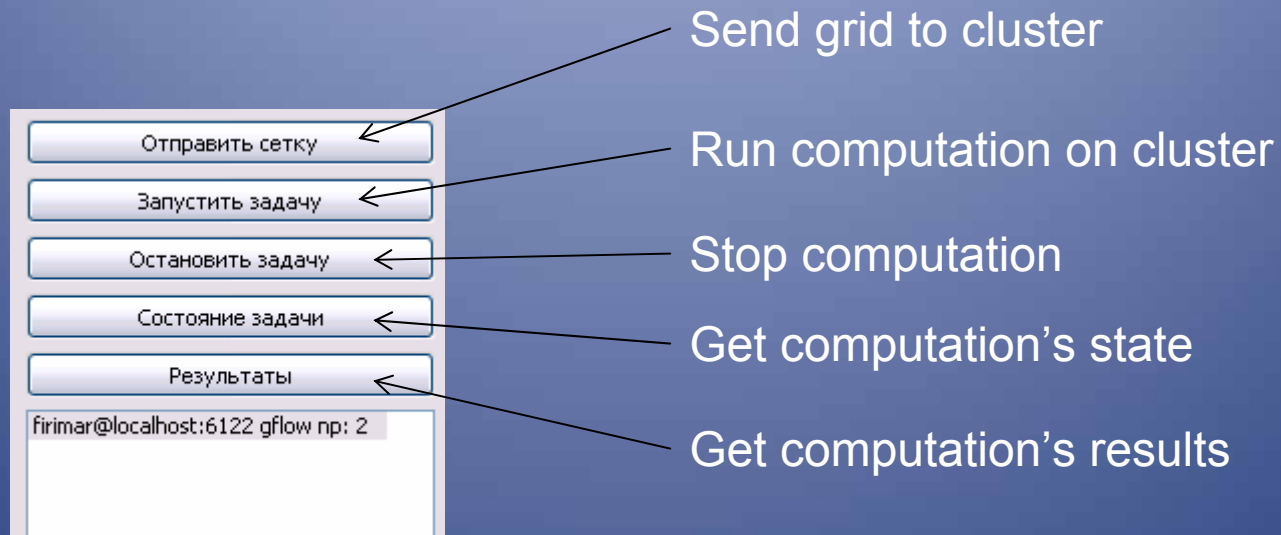
# Stage 4: Running computation on cluster

## Computing module requirements

1. Program should be located in a separate folder inside /home/gimm/
2. Script to run computation `gimm_start.sh`
3. Script to stop computation `gimm_stop.sh`
4. Script to get computation's state `gimm_status.sh`
5. Script to get computation's results list `gimm_list_results.sh`

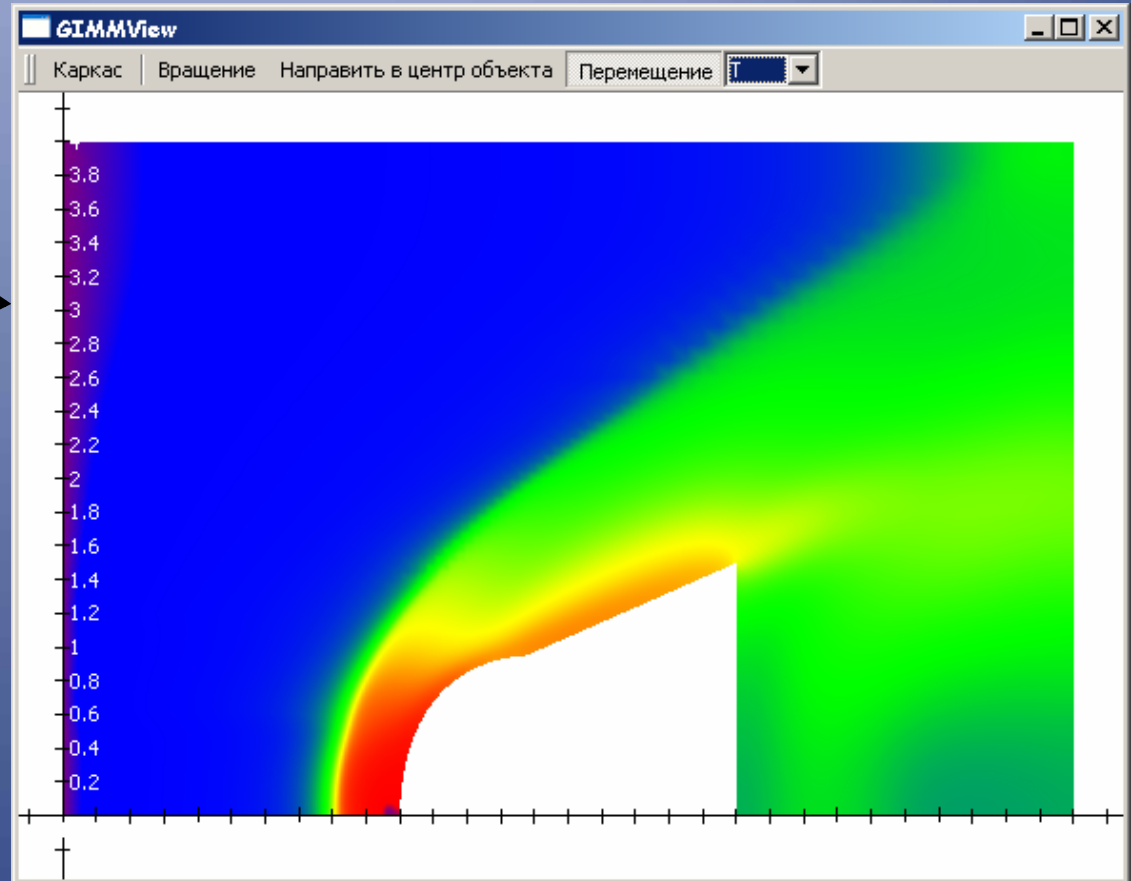
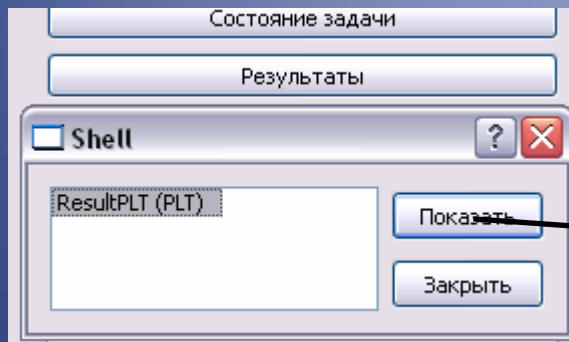
# Stage 4: Running computation on cluster

## Shell interface



# Stage 5: Retrieving and viewing results

## Results list



# Main features of software package

- Orientation on parallel computing
- Organization of problem solving process from beginning to end
- Possibility of using external computing programs without changing its code
- Cross-platform package