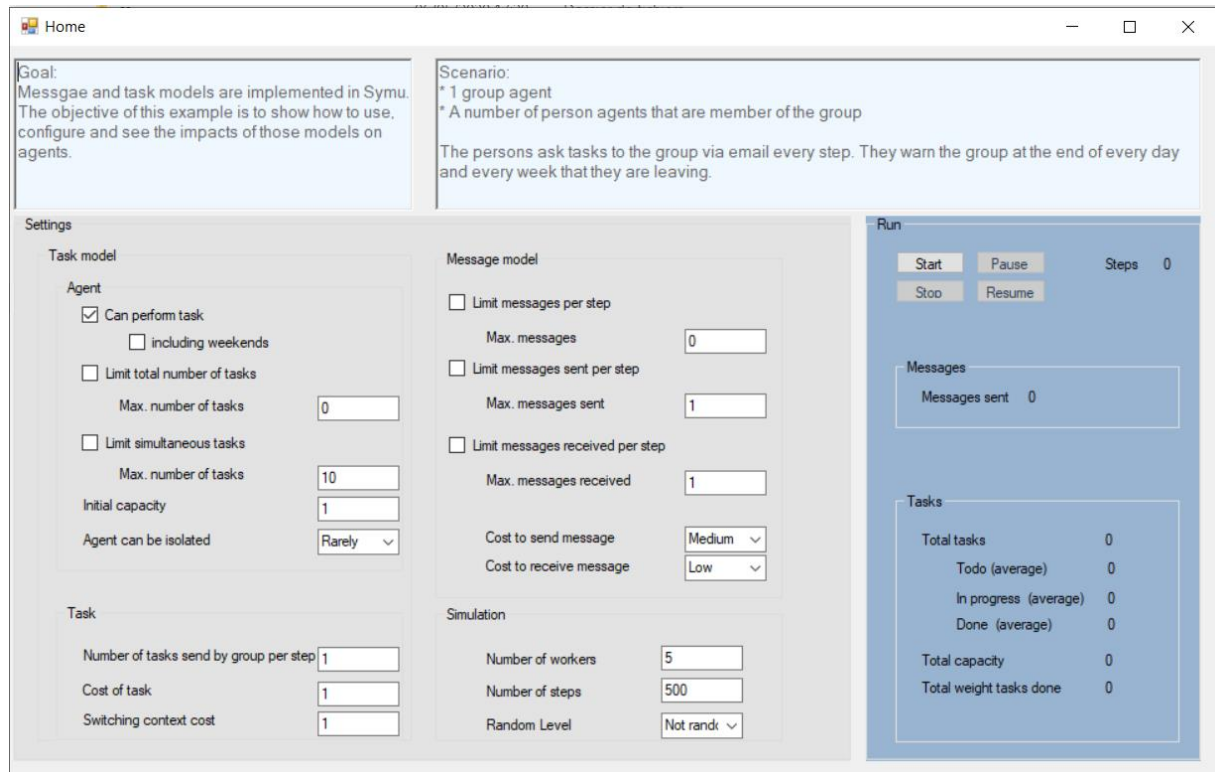


Message and task models

Different models are implemented in this simulator. This example demonstrates the use of two of them: message and task.

We have treated those two models at the same time because both are the engines of the simulation.



Message model

Messaging is the only way agents communicate to each other. This is one of the means of ensuring the autonomy of agents. A message can have different types: it can be a phone call, a meeting, an email, ...

There are two main aspects of the model that you can configure: limit and cost.

Limit messages

You can limit the total number of messages an agent can send or received during a step; you can also specify the number of messages sent or the number of receptions per agent per step.

Cost of the messages

Sending or receiving a message can have a cost that depends of the type of the message. The cost may be a fraction of the capacity of an agent. For example, for an agent with a capacity of 1, going to a meeting of two hours, the cost to send the message may be equal to 0 (sending invitations) and the cost to receive the message may be equal to 0.25 (doing the meeting).

Task model

In Symu, agents are task-based. A task is an action with a cost. Some of them don't perform task, such as a book or a static website; others can perform task such as workers. You can specify if the agent can perform task on weekends or not, that can be useful when your organization is an enterprise.

There are also two main aspects of the model that you can configure: limit and capacity.

Limit tasks

You can limit the total number of tasks an agent can perform during the entire simulation.

You can also limit the number of simultaneous tasks an agent is performing. If you want to avoid multi-tasking, you can set the limit to one. It is also an easy way to create a pull-system.

When you allow multi-tasking, you can define the impact of context switching between tasks on capacity. In that case, multiple tasks may be in progress at the same time.

Cost of task and capacity of the agent

A task has a cost. To perform a task, an agent has capacity, re initialized at each new step. Each time an agent is performing a task, the capacity of the agent is decreased.