

Getting started and building a simple model with JaamSim

All that is needed is the JaamSim executable, although it can be practical to have the additional JaamSim examples of simulation objects (from the JaamSim homepage) available later on.

Run the executable to start JaamSim. Note: some KAU users may need to run it in administrator mode.

After starting JaamSim, we can build a simple model as follows (see the video file):

- 1) As we are building a simple model, we don't need a 3D view and we toggle the view to 2D
- 2) We are going to build a model for (manufacturing) process flow, so we expand the tree for Process Flow objects
- 3) We drag and drop a simulation entity "SimEntity" into the View window
- 4) By right-clicking on the object and selecting Show Label we can display the name of the object.
- 5) Optional: we can change the name to something that we prefer. Note: spaces and some other characters are not accepted by JaamSim
- 6) Simulation objects enter the simulation model through an EntityGenerator, so we drag and drop one into the View window.
- 7) Let us assume that after arrival in the system, the products are transported by a Conveyor, so we drag and drop a Conveyor into the window. For better visualization, we can set the Width to for instance 4.
- 8) Processing machines (as well as other processing units such as desk clerks) are called "Server" in most simulation languages, so we drag and drop a server into the window.
- 9) When a product arrives at a server that is busy, the product is placed in a queue. We drag and drop a queue belonging to our server into the window.
- 10) We define a second conveyor that will transport finished products for further processing
- 11) In this case, we do not process the products any further within the simulated system, so they are allowed to exit the system. For this purpose, we drag and drop an EntitySink into the window.

At this stage, we have just entered all the objects that we need for our first simple model. We have not defined any routing (although we have kept this in mind when we placed our objects in the View window). We have not defined any processing times or other properties either.

- 12) We click on the EntityGenerator. The input dialogue box changes to "EntityGenerator1". We enter an inter-arrival time of 2.5 seconds as well as "required input" i.e. the simulation object (Prototype Entity) "Product" and the Next Component which is Conveyor1
- 13) For Conveyor1, we set a travelling time of 1 second and the Next Component is Server1.
- 14) For Server1, we set the processing time "Service Time" to 3 seconds and we select the Queue1 as queue to pick products from, as well as Conveyor2 as the next component.
- 15) We define travel time and next component for the second conveyor.
- 16) We save our model.

Now we should be ready to run our first brief simulation

- 17) We click on the "Play" button at the top left to start our simulation.
- 18) When we see that the model works OK, we can increase the simulation speed.
- 19) After stopping the simulation, we can click on a simulation model component and check some statistics related to that component in the output window at the bottom right.

Now it is time to build more advanced models. Apart from the manual, there are loads of models available online that serve as examples of how to model specific logic, and there is an active user group with good support from the JaamSim team.