Guide to MS Excel Add-In SimulTrek

This is short guide on how to use add-in SimulTrek. It discuss various modules and different types of resources in short detail.

Modules:

Modules are objects from which the simulation models is created. Each of them has special use and properties.

Generate module is creating entities based on set intervals. You can choose between six distributions. There can be multiple generate modules in model with different intervals. Please make sure that there is at least one connection from this module.

Delay module is the most complicated one. It delays entites that enters based on the selected distribution. Resources can be add to delay modules to make it active. If no resource is selected capacity of delay module is 1 with no limit. With resource every delay module has order. That mean in what order will be this module selected by resource. In every delay module you can choose **special** properties. There are:
- *Go Through* - if module closed then go through it without getting service.
- *Go Through (Empty)* - only go through if closed and resource in this module is empty (does not work in type cycle resource)
- *No Queue* - This makes that there is no possible queue for this module. If one chooses do go here and module is in use it will stop in previous module and wait.

Departure module is used to clear entity that is leaving simulation. Make sure that no connection are from this module because it will be invalid.
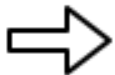
Connection create wat between two modules. If two or more connections are made from the same module probability needs to be selected. If the probability is not equal to 1 it will be adjusted during simulation. Connection can have travel time but if empty the transfer is instant.

Start will start simulation. First we need to select time for how long the simulation will last. Next we can select **forced clear.** This will stop new entities to enter model and than end simulation after every entity that is sill in simulation left (if it can).

Help will open Github with this guide. (**currently not working**)

Resources:

Resources are used in delay modules. There are four types of resources with different attributes. Each resource can have different capacity, count and measure that can be adjusted in delay modules.

- **Capacity -** Must be one or higher. It says how many entitles can enter module at the same time without creating queue.
- **Count -** Any positive number or "Inf". It says how many times we can use this resource in module. If module is type fixed it be will closed forever.
- **Measure -** Only in use if count is not "Inf". Then it is used to select type of "count". If time value is selected than the value in count means for how long resource stays in module.
- **Order -** It says in what order is resource choosing modules when transferring. Expect for priority.

Type Fixed can be assign to only one module. Its use are mainly to set up capacity and count if needed.

Type Cycle is type of resource that is going through 2 or more modules in "circle". Meaning if we have two modules it just swithes between them unslless one of them has count set to "Inf".

Type Flow is similar to Cycle. The difference is that once it reaches last module it will stay there indefinitely. Make sure to pout last module count to "Inf" to make module stay in active state.

Type Priority is the most complicated one. It chooses where to come based on order. Lower number in order is higher in priority. If someone will arrive to module with higher priority resource will go there despite queue in his current module.

Module State is based on resource. If resource is assign and is in module than is **active**. Otherwise if resource is assign, but currently in different module than is **closed**. When closed no services is provided in module.

Add resource with name and selected type. Type can then adjusted in "adjust".
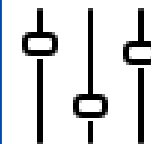
Adjust can adjust any resource. Here you can adjust travel time of resource between modules (default 1 sec.), order of modules and type.

Clear will delete all data and objects in model. Be aware after clicking this button you can not go back.

Reset simulation and will clear our data from previous simulation. Model will stay.