

Systems Modelling and Simulation (Lab session 4)



In this session we will cover:

1. Further enhancement to the RL example Animation
2. Adding routes, stations, ...
3. Limited queues behind resources the “Balking” technique in Arena

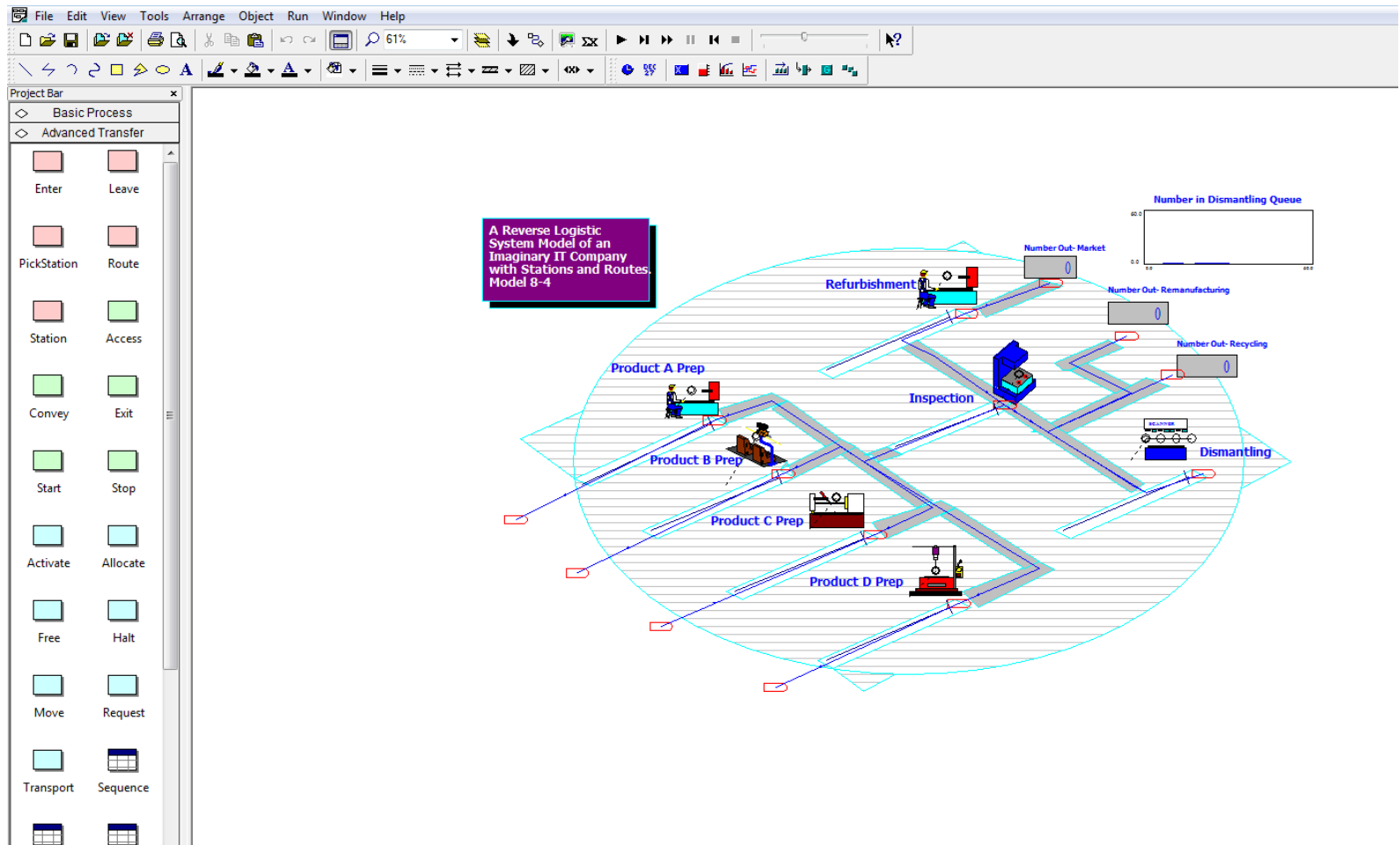


Routing Entities

- To incorporate travel time between stations
- Improve the representation of the model
- Basis to specify sequences and process plans
- Basis for conveyors and transporters

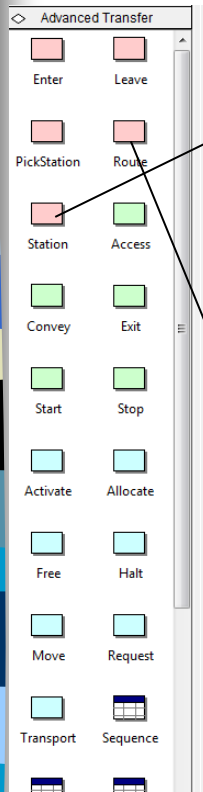
Open Lab E4.1 Exercise... from the module webpage

The key Modules are from Advanced Transfer

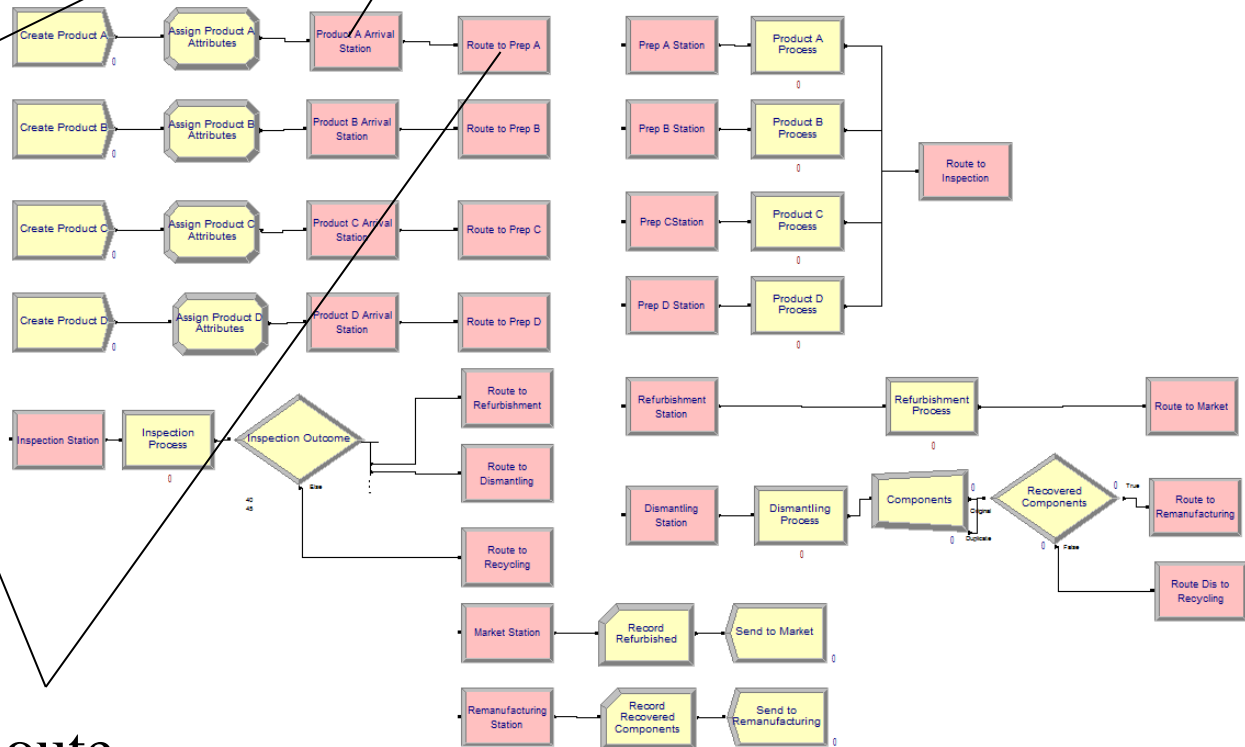


Station and Route

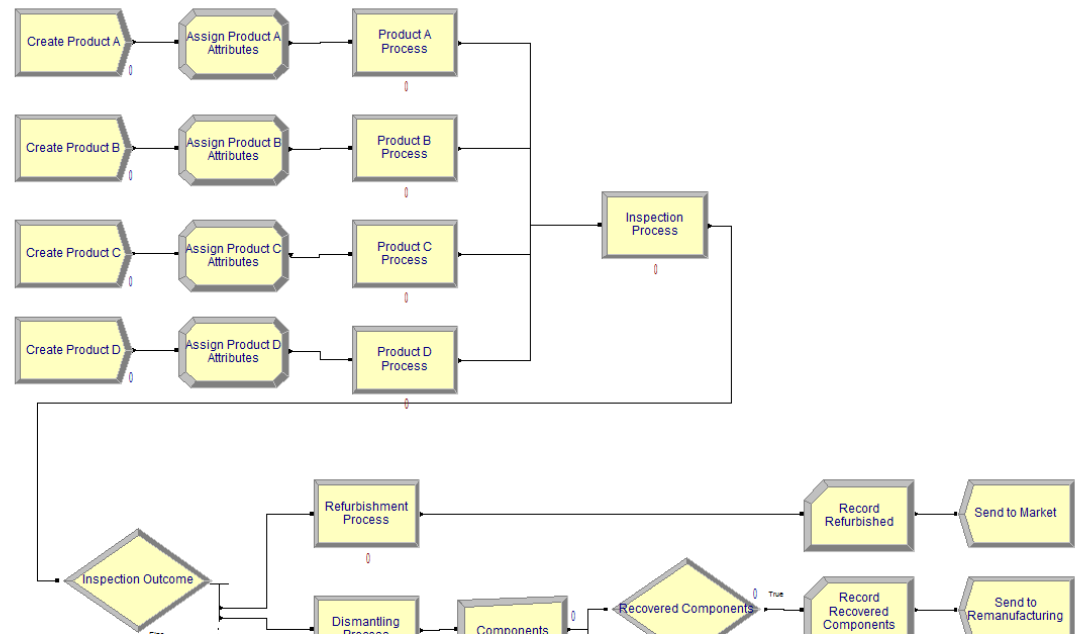
Station



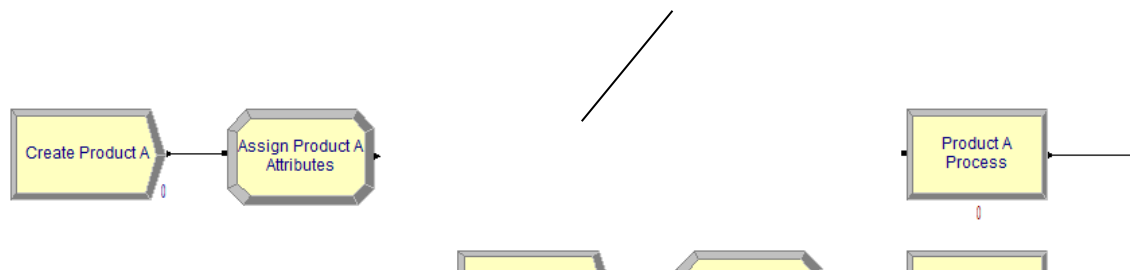
Route



Open E3.2



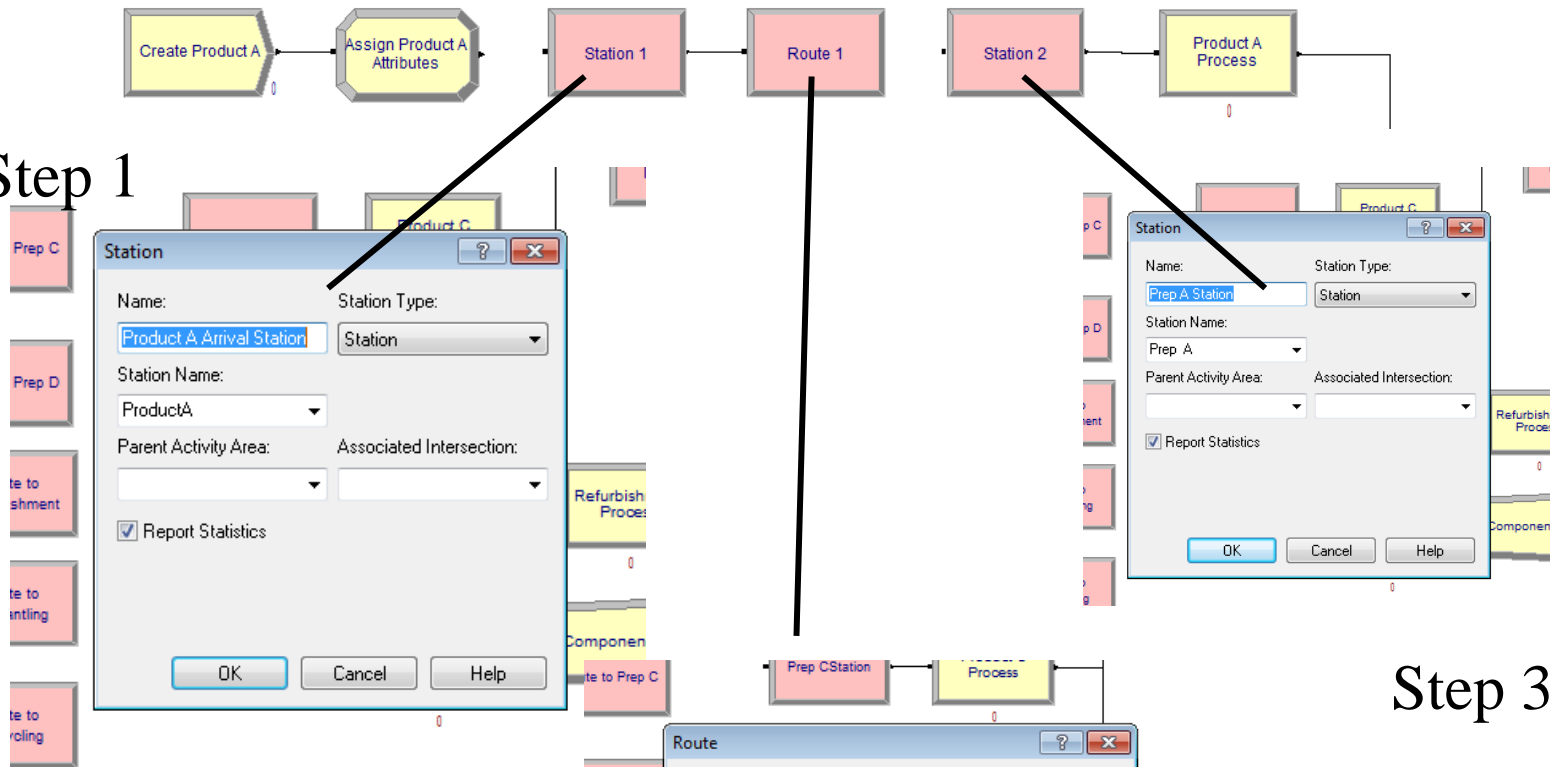
Make space between Assign Module and Process Model – delete the link



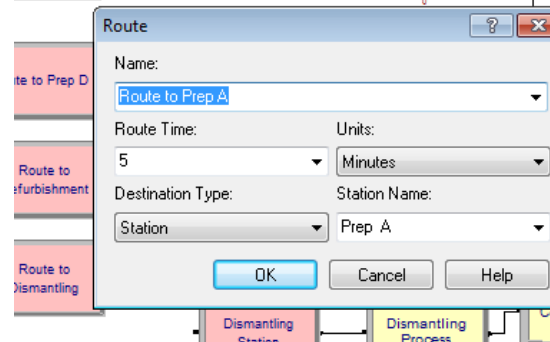
Insert 2 Stations and a Route

Note: We are telling Arena to specify area (stations). Such as part arrival area and part prep area
Repeat for all other (see slide 4)

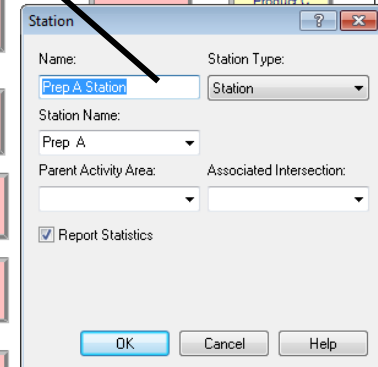
Step 1



Step 2

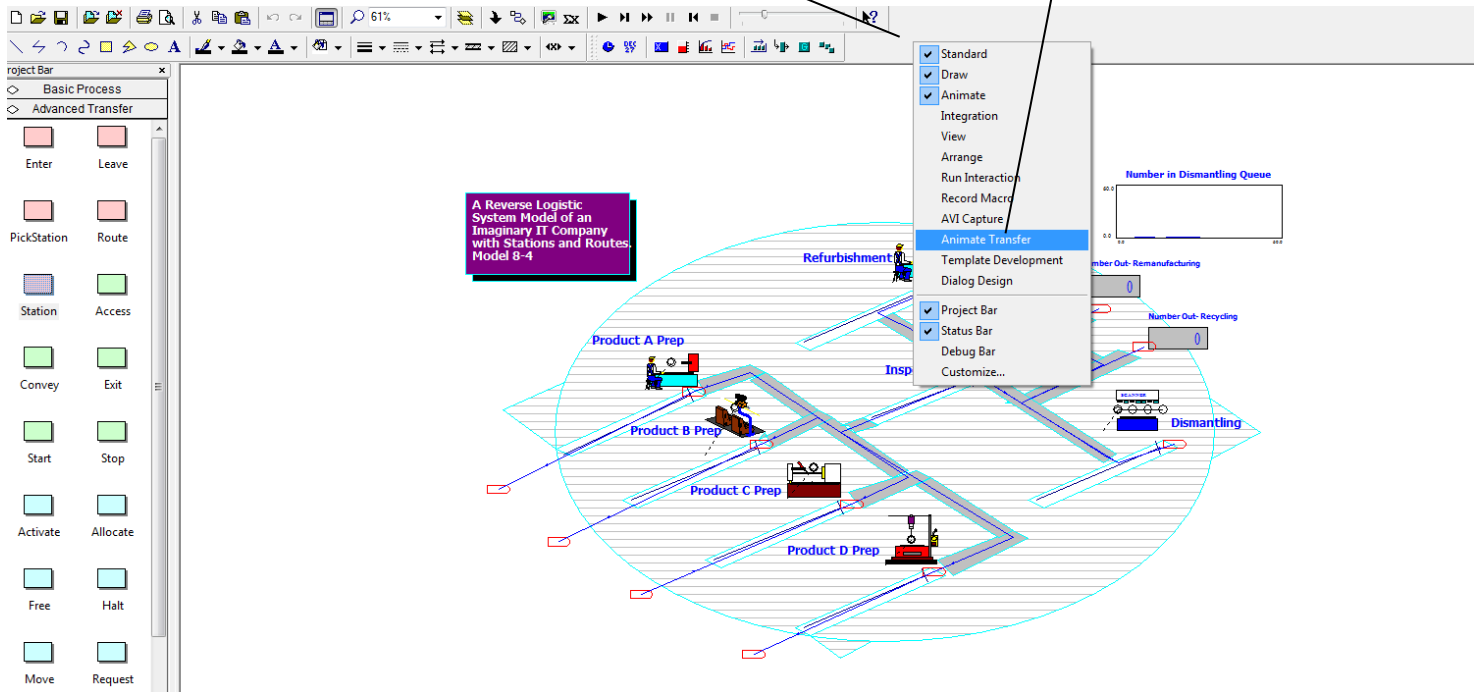


Step 3

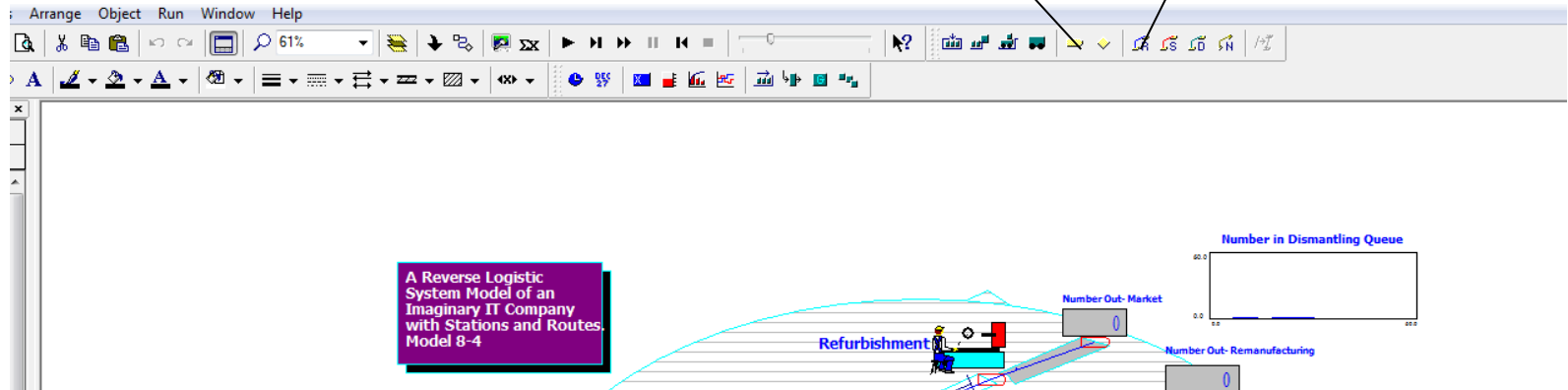


Animate Transfer

1. Add the Animate transfer bar – roll your mouse onto the top windows menu – right click and choose Animate Transfer



Animate Transfer Cont. Station Route



Station 1

Station 2



Route between Station 1 and 2

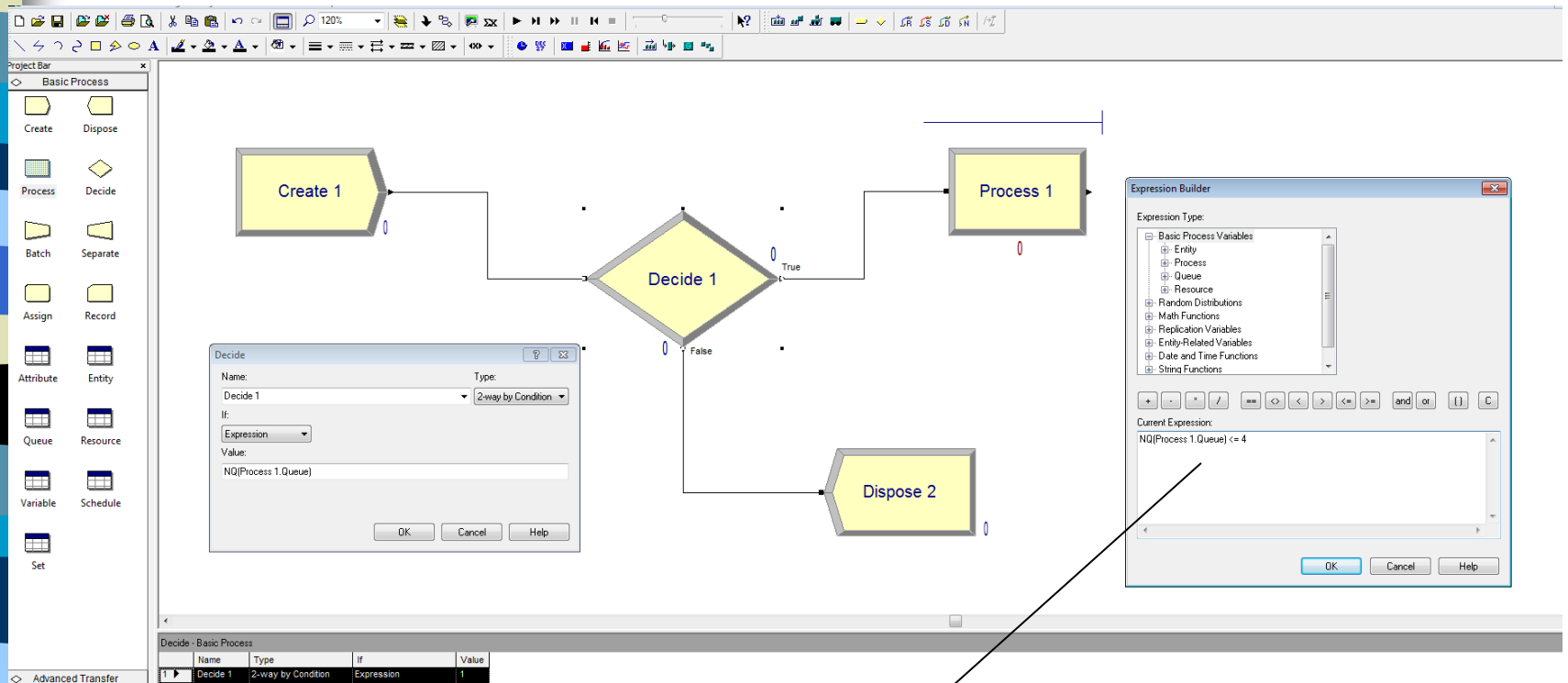


Balking

- In the real world buffers or queues behind work stations are limited
- Even in environments where we think queues are unlimited there is a natural Balking – for example queues in fast food restaurants or petrol stations
- Two further examples of how to limit queues behind your resources
- *Good method to test if you have modelled your work correctly*

Let's view the two examples...

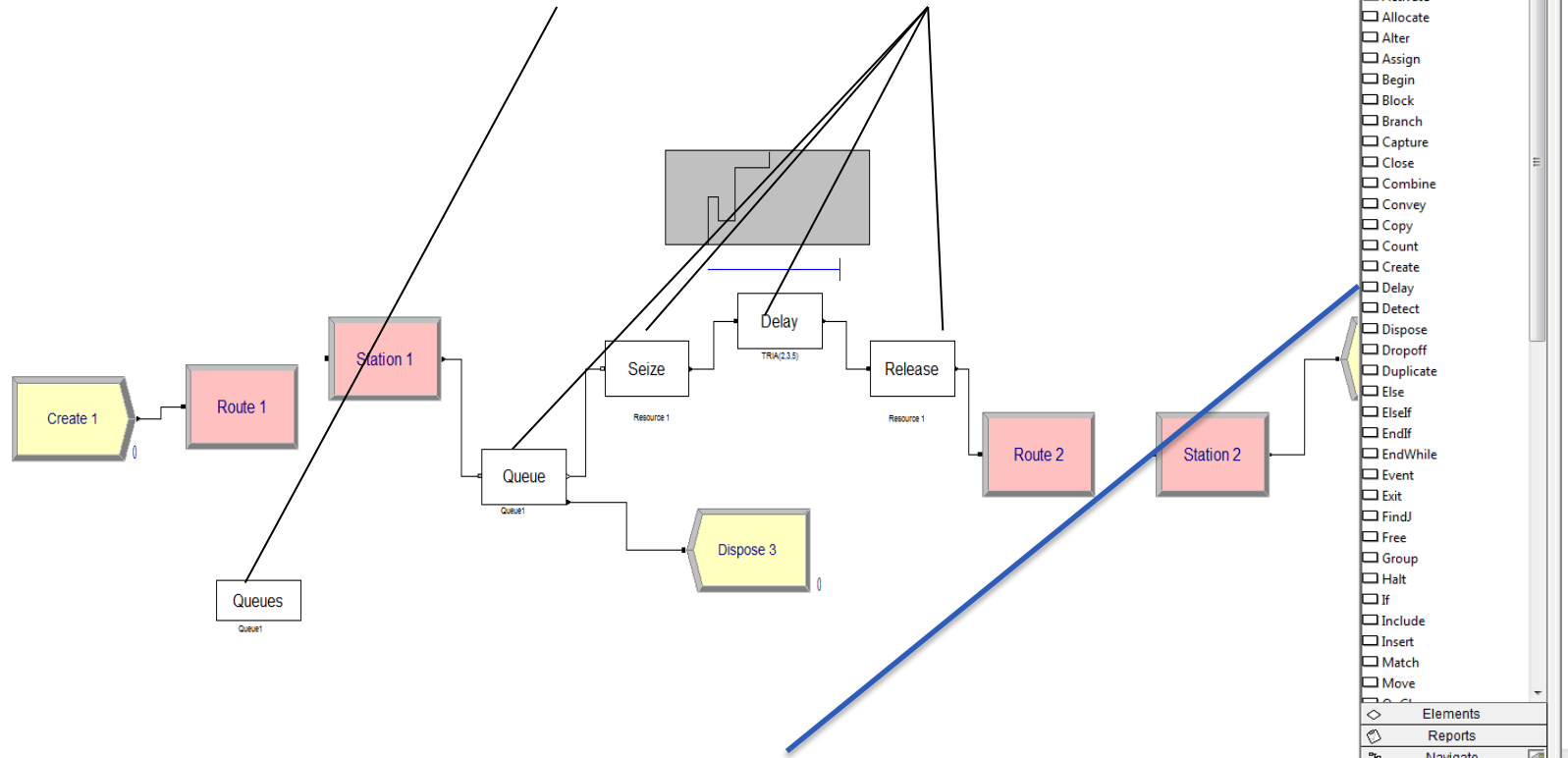
Example 1: Conditional Statement



If number in Queue less than or equal 4 go to process 1 else dispose

Limited Queue Capacity

Using modules from Elements and Block Template Panel



Attach the Block and Elements Templates to the left hand side Template window

Set Queue capacity

Entities will join the queue for Resource 1 until the number in Queue reaches 2. Any exceeding entity
Will be diverted to dispose

