Release Notes for ArcPORT™

2.3

This document describes the notable changes made to ArcPORT since version 1.28.

- **2.3 (Released on December 11, 2019, requires an active Maintenance Assurance Program (MAP) subscription on 11 December 2019.)**
  - **a. Terminal related enhancements**
    a) Callout display: dynamic graph display during animation. Includes throughput, queue length and density.
    b) TLOS improvement: added an option to calculate the number of resources needed at each interval of time. For example, it is possible to analyze the number of immigration counters needed every 15 minutes or the number of check-in counters each airline would need every 30 minutes, etc.
    c) Database enhancements: easier to share between users and projects.
    d) Report enhancements:
      i. Critical Queue Parameters report: "Max Queue Time" column is in "hh:mm:ss" format.
      ii. Added multirun report to Processor throughput report.
      iii. Added column "Input Pax Served" and replaced original "Pax Served" by "Output Pax Served" to Processor throughput report.
      iv. Added multirun report to Queue length report.
      v. Time in Terminal report: added 3 more columns with Duration of Travel Time, Time leave FROM processor and Time arrive at TO Processor, to calculate passengers' travel time between FROM and TO processor, that is the time difference from the time that passenger leaves the FROM processor to the time arrives at the TO processor.
      vi. Added a new report, Passengers waiting for elevator, that calculates the number of passengers at any instant of time that are waiting for an elevator.
    e) Bug Fix:
      i. Dimension box is shown in front of the shape, so it is fully visible.
      ii. When using Edit conveyor (on the flow GUI), conveyors on not active floors can also be selected.
      iii. Ruler is now showing the measured line.
    f) Enhancements:
      i. Added a new set of Shapes on the Shape bar: Two new tabs, Object (OGRE) and Person (OGRE).
      ii. Added support to create AVI video files using the MPEG-4 codec.
      Note: The Xvid video codec library must be installed separately by the user in order to produce AVI videos (see: www.xvid.com/download/*)*

      Note: On 32-bit editions of Windows®, to increase the amount of memory available to ArcPORT from 2GB to 3GB, the 4-gigabyte tuning (4GT or 4GT RAM Tuning) feature can be enabled (see: https://docs.microsoft.com/en-us/windows/win32/memory/4-gigabyte-tuning and https://docs.microsoft.com/en-us/windows/win32/memory/4-gigabyte-tuning)
      iii. Video recording parameters GUI is now resizable. Also, ArcPORT will show an error

message if the defined path to save the file does not exist.

iv. "Preview Movie" and "Preview Movie with Animation" are available again.

v. AutoCAD files: Update of the ODA library to support CAD 2020.

vi. Railway systems:

1. When a railway station is deleted the railway track system will be automatically redefined with the remaining stations.
2. The unit for Turnaround time, dwelling time and headway time has been changed to seconds, allowing for more precision.
3. Speed, acceleration and decelerations parameters can be real numbers, allowing for more precision.
4. Turnaround and dwelling time concepts have been reviewed:
    a) Turnaround is the time the train will remain at the station and it can be defined for each station.
    b) Dwelling time is the time the doors will remain opened starting from the arrival time to the station. Dwelling time cannot be greater than Turnaround time.

vii. Walls: Airside wall can be seen in Terminal mode. Terminal wall can be seen also in Airside mode.

viii. Mobile Element Display GUI: "Name" and "Mobile Element Type Description" columns can be modified by double clicking.

ix. Error messages:

1. A specific error message will be shown if dependent linkages conflict with flow definition.
2. Warning messages have been added when user attempts to delete floors.
3. Improvement of missed flight error message when the simulation ends but there are still passengers that have not finished. This reduces the number of missed flight errors shown and saves memory usage.
4. Specific warning message for Airside Shuttle bus when passengers are waiting at the wrong queue to board the bus.
5. New error message to warn when a processor inside a process is being used in the same branch in the flow.
6. Error message to warn about stay times negative in the flight schedule.

x. "Cannot start new service" functionality is now usable in conveyor processor type.

xi. Mobile Element Flow GUI:

1. Added the modify button: after the flow has been created, the passenger type can be redefined.
2. Improvement of Parent-Child relationship: the relationship will be strictly based on passenger type. We removed this relationship when using the "copy" button.
3. Flow GUI columns names are dynamic based on user definition.

xii. Implemented the "Reciprocate" column in Gate Adjacency GUI.

b. Airside related enhancements

a) Enhancements:

i. Showing doors and slides when AC parked remotely:

1. If there is no operation door specification defined, one stair will show up on the first AC door in the left.
2. Otherwise, the stairs will show up on all opened operation AC doors.

b) Bug Fix:
   i. Hide all stand elements in Terminal model.

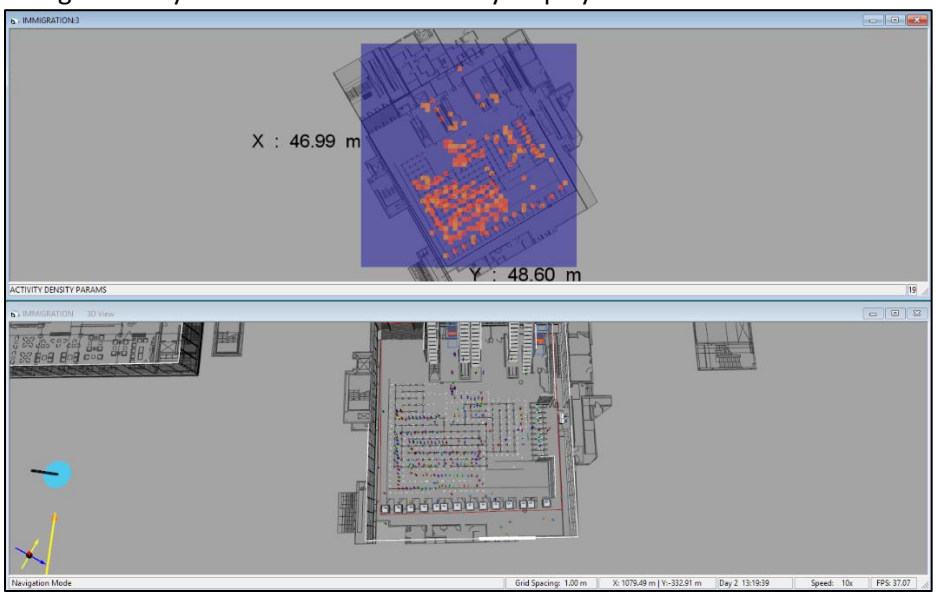
c. Landside related enhancements

a) Change lane logic improvement:
   i. Change lane must be adjacent.
   ii. Make sure that by default, vehicles will change lane to choose the shortest path.

- **2.2.1 (Released on April 29, 2019, requires an active Maintenance Assurance Program (MAP) subscription on 13 December 2018.)**

a. Terminal related enhancements

i. Improvement of the Activity Density Display function:
   - Area definition can handle any polygon shape. Only rectangle was allowed in previous versions.
   - Existing areas used in other parts of the model can be reused in this functionality.
   - Background layout is added to the density display.



ii. Improvement of Movie Maker Function:
   - Faster recording.
   - Animation stops when a keyframe is added, so the user can reposition the camera.

iii. Aircraft Operating Door Specification GUI bridge related parameters (starts to move, starts to draw back, speed) have been implemented.

iv. Process GUI enhancement: Flow GUI settings can be used in Process GUI.

v. Cells in the Import Wizard Flight Schedule can be modified before importing the schedule.

vi. Bug Fix:
   - Resource pool has been adapted to OGRE Engine.
   - Railway system has been adapted to OGRE Engine.
   - Changes in Airside are refreshed immediately when user changes to Terminal

mode.

vii. Other fixes and improvements.

b. Airside related enhancements

i. Bug: Fixed Movie Recorder in Airside mode.

- **2.2.0 (Released on December 13, 2018, requires an active Maintenance Assurance Program (MAP) subscription on 13 December 2018.)**

d. Terminal related enhancements

a) Upgrade of ArcPORT Terminal's 3D engine to OGRE. This will allow:
   i. Skeletal animation.
   ii. Better use of the GPU and the CPU.
   iii. Render state management. Shadow rendering and Render 3D scenes.
   iv. Spatial culling.
   v. Dealing with transparency.
   vi. Better support for 3DS format files.
   vii. More realistic 3D animations.

b) Target Level of Service multirun functionality. Improvement of the already existent TLOS functionality by making it iterative and applicable to multiple stages of the passenger life (check in, security, emigration, immigration, etc.) at the same time. This will allow to calculate an approximate number of processors needed to handle passengers meeting two requirements inputted by the user: Queue Length and Waiting in Queue Time.

c) Bridge logic enhancement:
   i. A queue can be defined. Similarly of how it is done with a point processor.
   ii. Aircraft can have several bridges connected to both sides (right and left). Allowing for futuristic boarding analysis.

d) Copy flow enhancement. Copy from flow GUI to processes GUI and vice versa is available now.

e) Improvement of error message notifications.

f) Alignment functionality enhancement. In addition to the already existent alignment between floors, two new alignment features have been added:
   i. Alignment of CAD to Layout. This will allow to reposition a CAD file to an existent layout.
   ii. Alignment of Layout to CAD. This will allow to reposition a layout to a CAD file.

g) Enhancement of Non-Passenger ME impact into Passengers. How the Speed, in-step and side-step are impacting by the number of items a passenger carries.

h) Enhancement of the Time in Terminal report. Additional columns added:
   i. Waiting time for elevators, airside shuttles and trains (APMs).
   ii. Time in elevators, airside shuttles and trains (APMs).
   iii. Number of elevators, shuttles or trains (APMs) taken.

i) Passenger group generation enhancement. A new checkbox (*Generate Groups First*) has been added in simulation settings. If this feature is activated, passenger groups will be formed first, then all other attributes will be assigned.

j) Improvement of synchronization logic. This will allow a much-detailed security micro modeling.

k) Extended the Windows Reserving functionality to Hand Bags.

e. Airside related enhancements

a) Airside shuttle bus functionality. This will allow terminal passengers board a shuttle in the secured part of the terminal, travel on airside (or landside) roads, disembark again in another secured part of the terminal, and then continue with their flow as a terminal mobile element.

f. Landside related enhancements

a) Roundabout logic enhancement.
b) Crosswalk logic enhancement.
c) Curbside logic enhancement.
d) Added the option of creating several entries and exits to a parking lot.

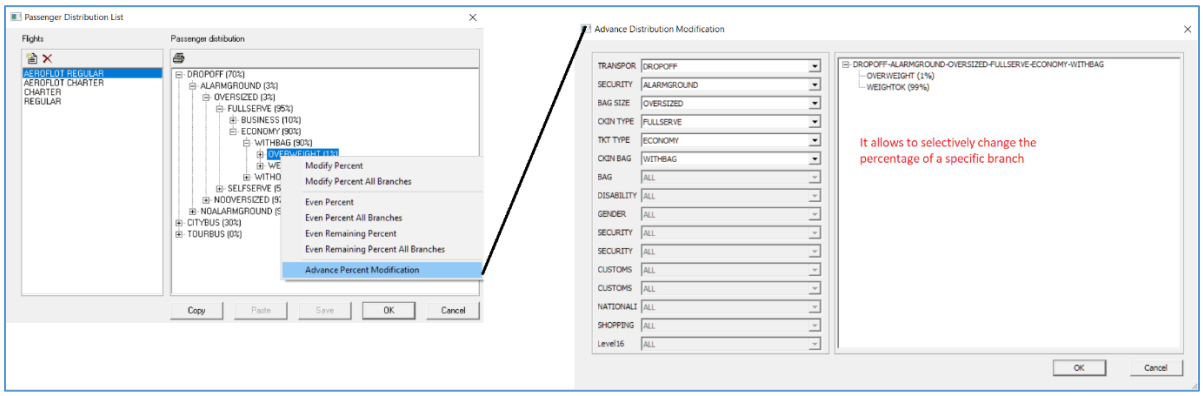
- **2.1.1 (Released on 28 June 2018, requires an active Maintenance Assurance Program (MAP) subscription on 8 May 2018.)**

g. Installation

i. A Project folder is created in ProgramData, if it didn't already exist (regression in 2.1.0).

h. Terminal related enhancements

ii. Passenger Distribution GUI: Added a new item to the list called "Advance Percent Modification":



iii. Passenger Density Report improvement: previously only single reports could be exported. With this improvement, multiple reports can be exported in one click.

iv. Bug fix. Movie Recorder: keyframes can be slide now.

v. Bug fix. Flow Condition→Wait Time.

In ArcPORT, in the flow, we have an option called Flow Condition for controlling the flow of passengers. It has six options:

i. **Percent Split:** allow the user to define the probability of choosing a destination.
ii. **Queue Length:** allow the user to define a queue length limit at certain destinations. When the limit at the destination is reached, other passengers won't be able to choose that destination.
iii. **Wait time:** allow the user to define a wait time in the queue. When the waiting time of the passenger at the head of the queue exceeds the wait time defined by the user, the destination won´t be able to be chosen by other passengers. The wait time start counting when the passengers arrives to the last position of the

queue.

iv. **Skip when time to STD less than:** allows the user to define a time prior to STD in which the passenger won't be able to choose that destination (will skip that destination)

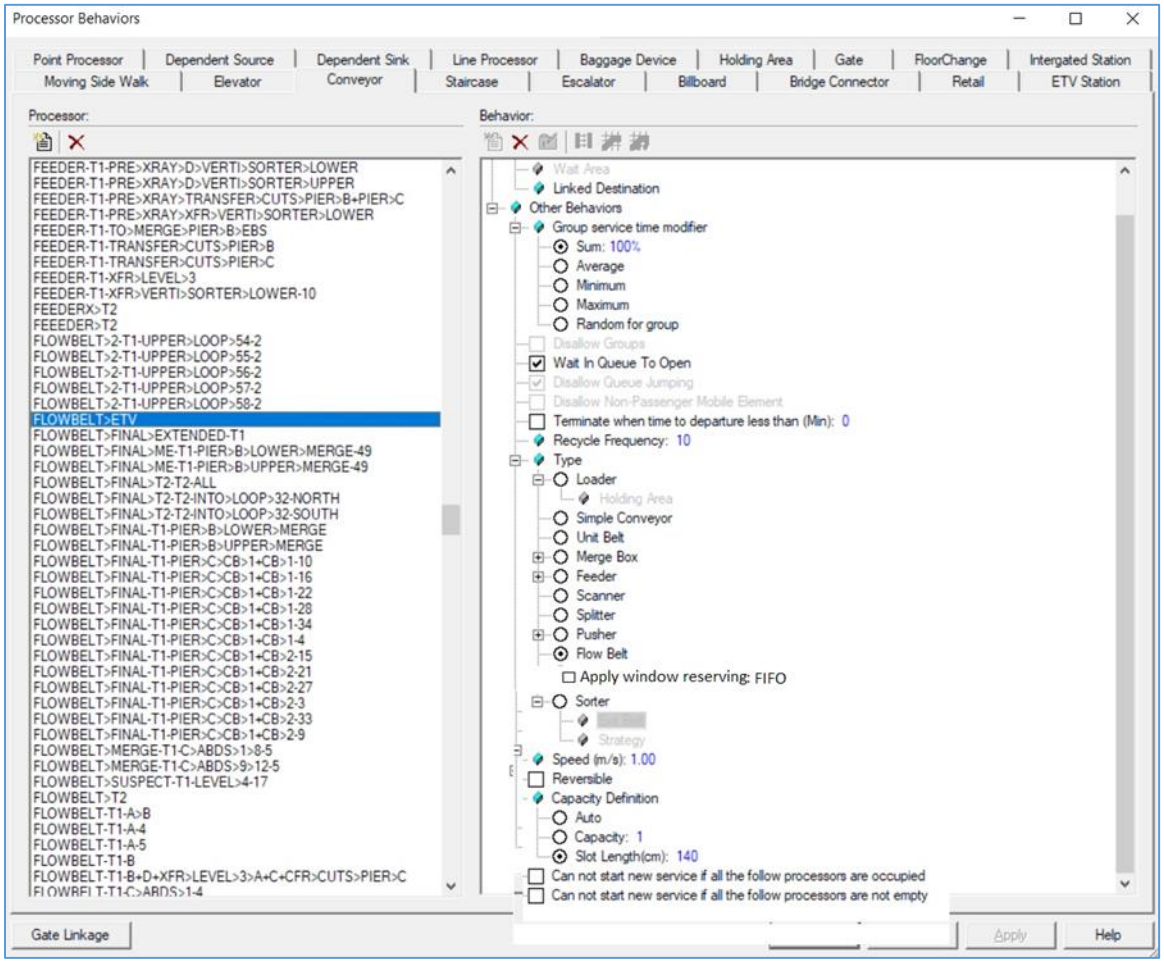
v. **Capacity Reached:** allows to choose a branch based on if the capacity at a certain processor have been reached. It was designed for BHS use.

vi. **Contingent Flow:** allows to choose a branch based on if a processor has been previously visited. It was designed for BHS use.

- **2.1.0 (Released on 8 May 2018, requires an active Maintenance Assurance Program (MAP) subscription on 8 May 2018.)**

  i. BHS related enhancements

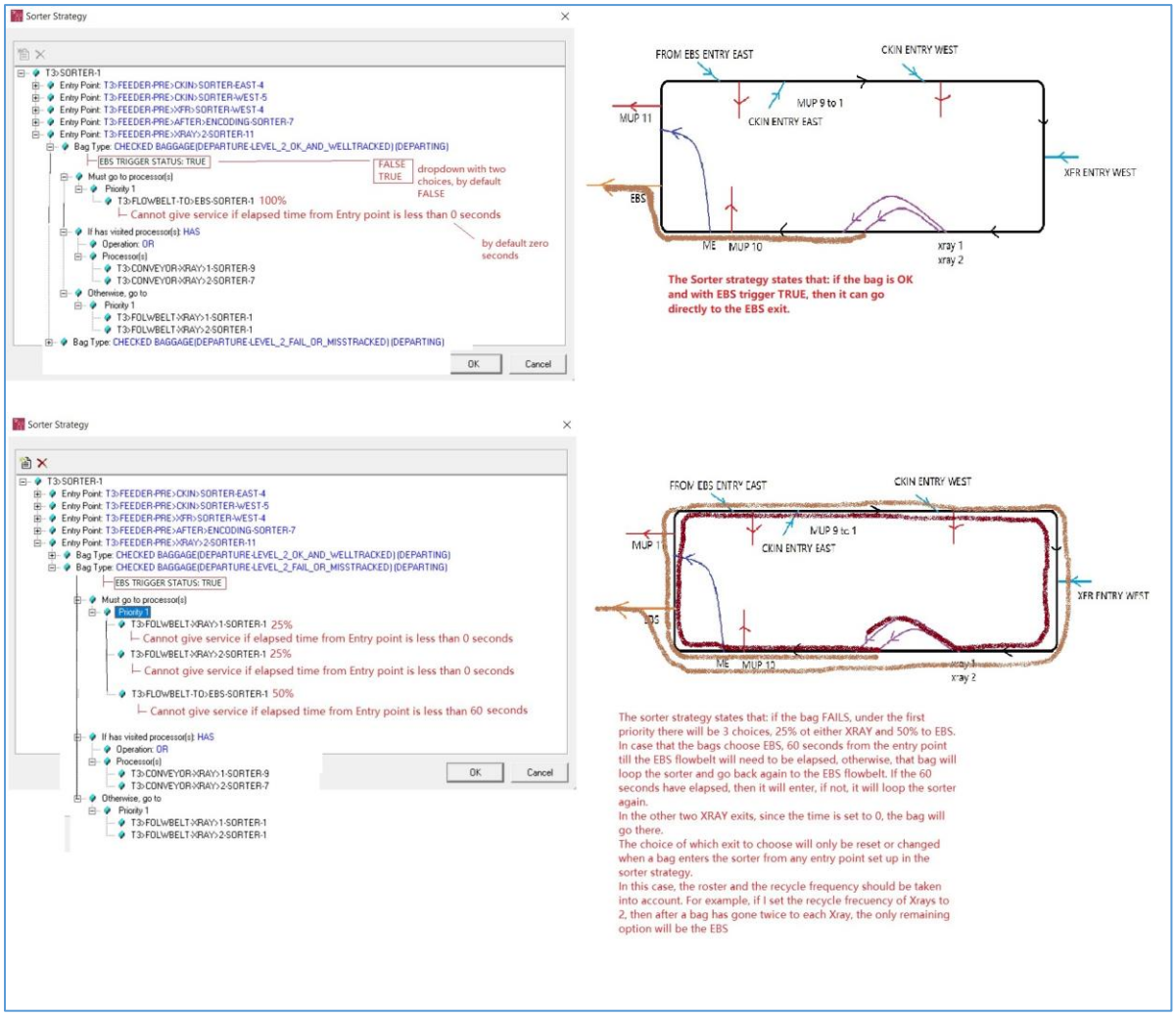
  vi. Added the window reserving function for flow belts. This new function allows bags at the check in to reserve a slot of the flow belt. The function can be activated in Behaviors and by default has the FIFO option:



vii. Improvement on the ETV slot length vs capacity inject point. If the slot length does not allow to allocate all the bags according to capacity, then capacity will take priority.

However, if the slot length allows to allocate all the bags according to capacity, then the slot length will prevail.

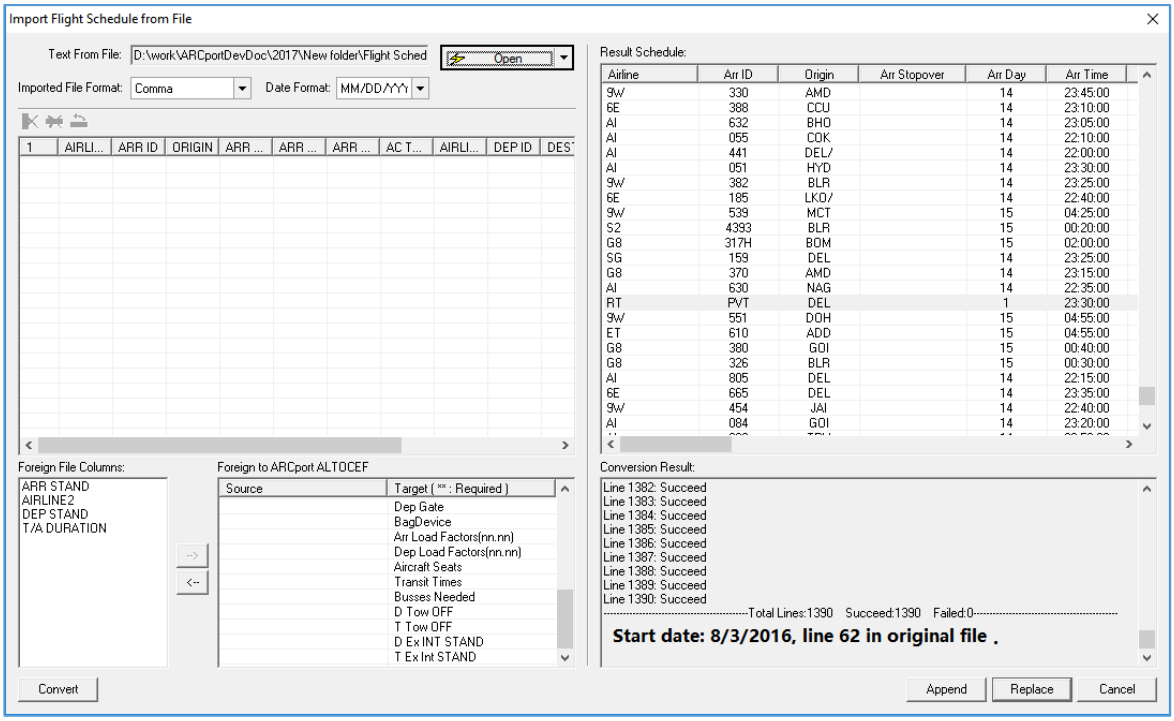
viii. Improvement of the Sorter Strategy with EBS status & Probability & travel time. This enhancement makes possible for bags to choose a sorter exit based on the EBS status and the time they have spent in the sorter:



ix. Implemented the EBS based on conveyors system functions. This adds to the already existing functionality of EBS based on ETV systems.

j. Terminal related enhancements:

i. Show the start date and the line number while importing flight schedule.



ii. Upgraded ODA library to support the AutoCAD 2017 dwg file.

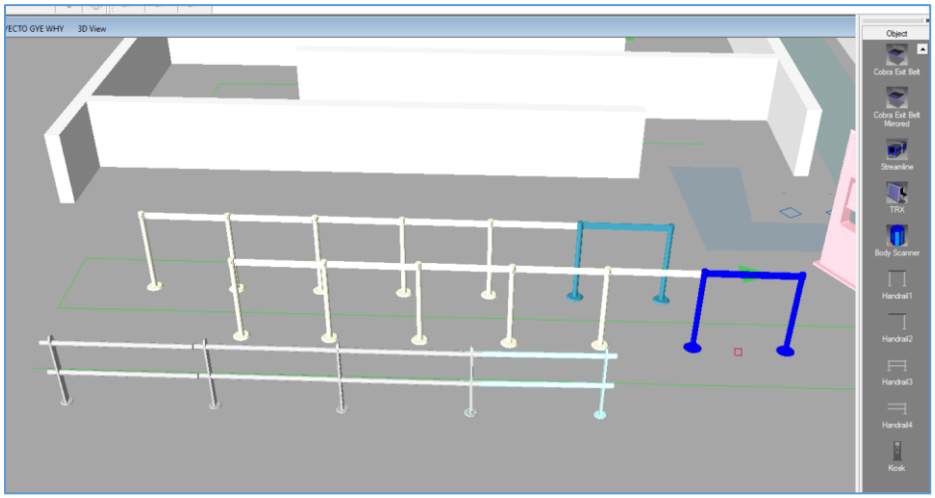
iii. Improvement on warning messages. When trying to delete a flow that has children, it will pop up a warning message “This flow cannot be deleted because it has one or more associated children flows.”

iv. Improved the 3D shape path. The shape path will be updated in ArcPORT, and when the project is opened next time, ArcPORT will look into the latest set path.

v. Improved Pan and Zoom functions to make it easier to handle.

vi. Improve the View→Export functionality.

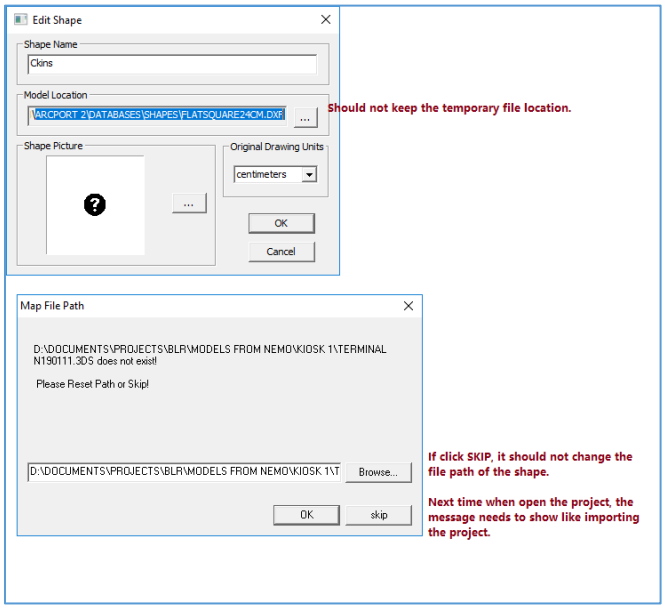
vii. Added a new handrail shape in Terminal’s Shape Bar.



viii. The shape bar can be scrolled using the mouse’s wheel.

ix. Fixed some memory issues on the flow GUI.

x. Improved the imported 3DS file path:

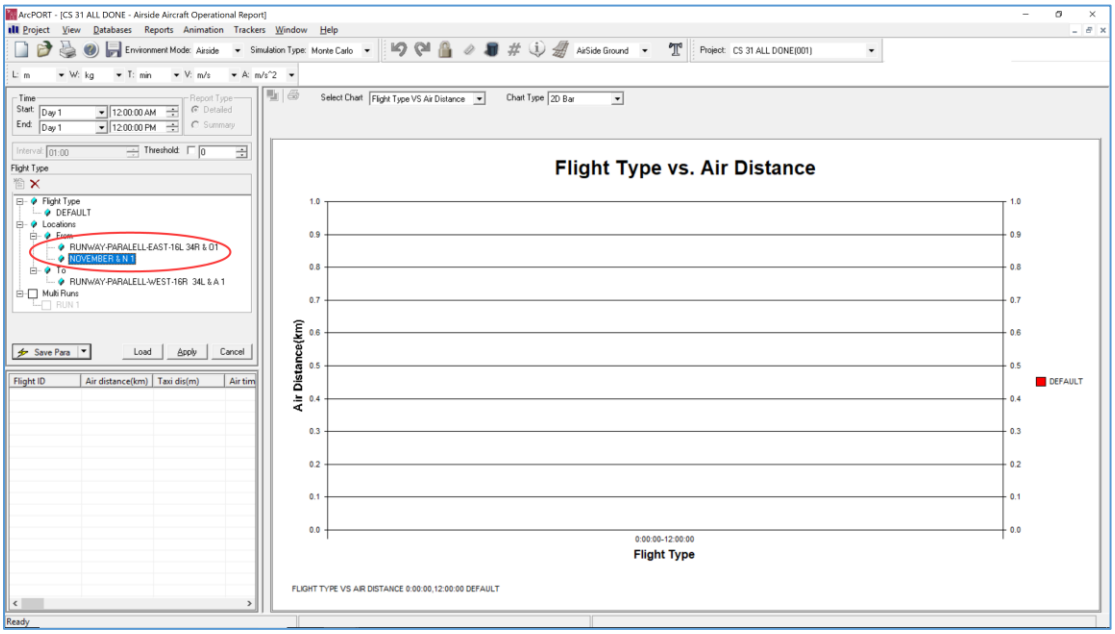


xi. Improved the simulation error message description.

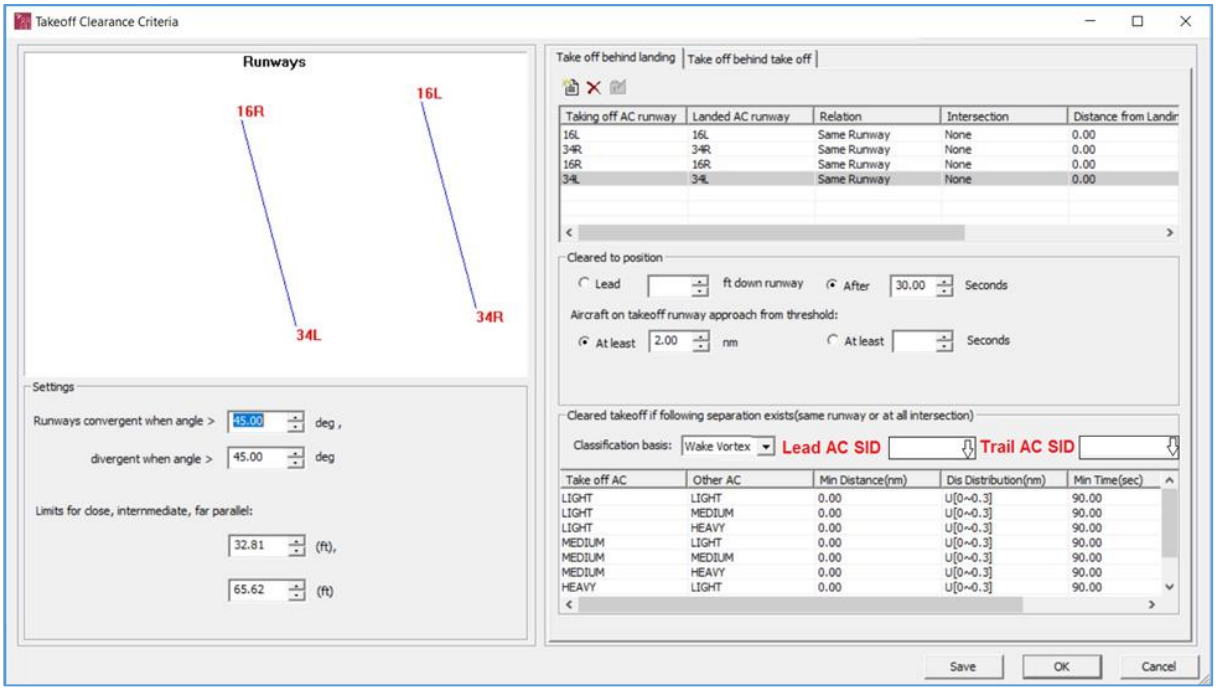
k. Airside related enhancements:

i. Improved the Aircraft operational report that to allow multiple node selection.

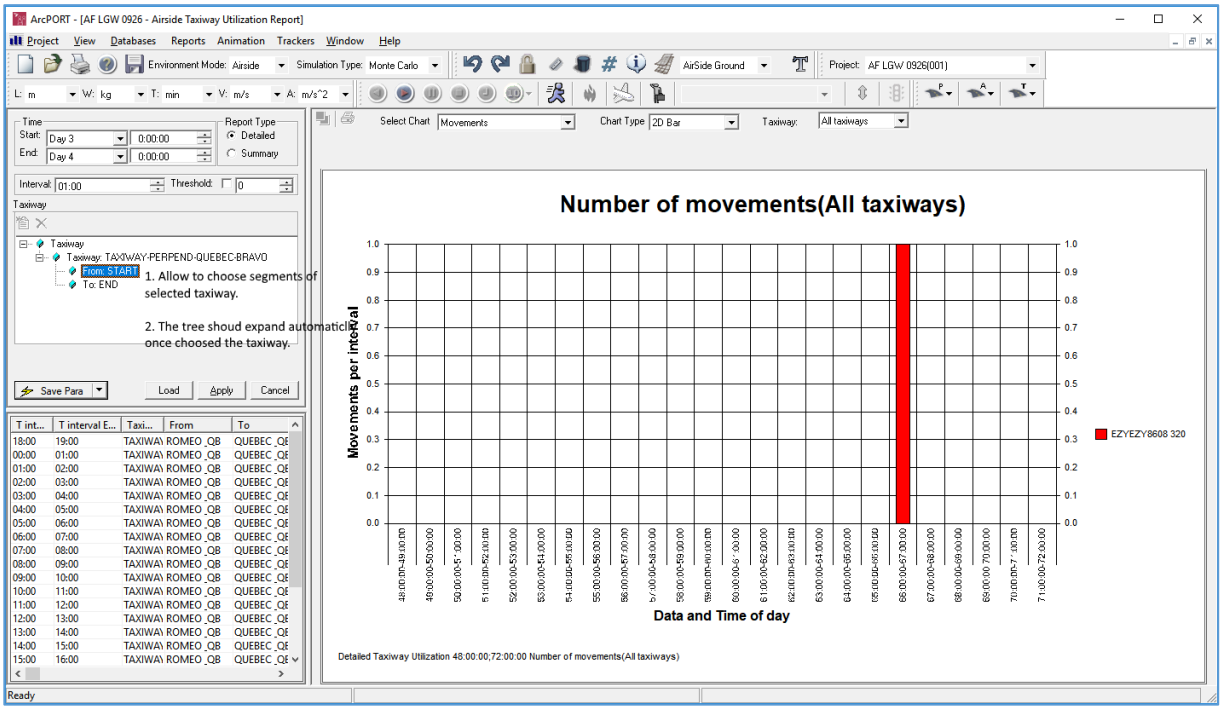
ii.



iii. Improved the Clearance Criteria GUI so the SID that is chosen by the AC can be take into account when applying separations:



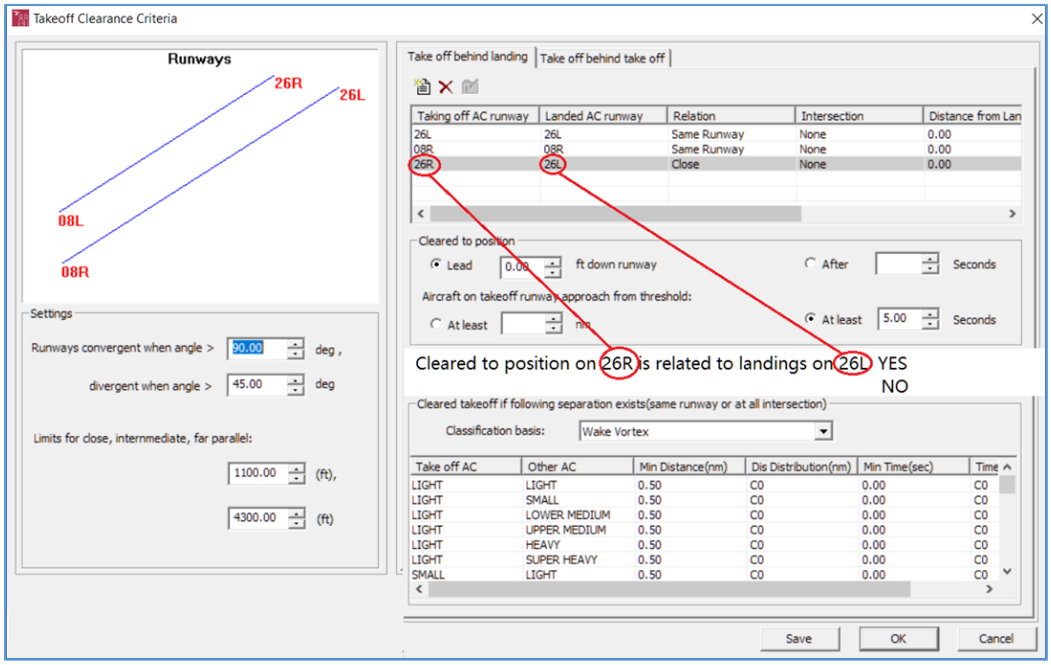
iv. Improved the Taxiway utilization report to be able to choose taxiway segments:



v. Improved the cleared to position function:

- Originally, the cleared to position functionality was thought and developed based on a single runway system or on a multiple runway system in which runways did not affect each other. Therefore, before allowing an AC to go to

position, ArcPORT would check that the takeoff did not have any conflict with a landing. This means that if the takeoff operation couldn't completely finish before the landing occured, then the AC would not go to position. We added a functionality that allow us to go to position independently of another close runway landing. See below picture. "YES" will be selected by default and it will behave as the original design. When "NO" is selected then the AC on 26R will go to position independently of any landings on 26L. This means that if the take off in 26R is conflicting with and landing in 26L, it will still go to position but will wait until the landing on 26L has occurred and then see if the takeoff can start and finish completely without conflicting with another landing.



vi. Improved the Cleared to position when the trigger is set by distance.

vii. Fixed and issue with the arrival ETA trigger to consider the flight groups as well.

viii. Improved the deceleration when landing:

- If A is the user defined max deceleration and B is the calculated max deceleration by min landing distance then:

  If B > A then we will use A and give a warning message.

  If B < A then we will use B. No warning message is required in this situation.

- If A is the user defined normal deceleration and B is the calculated normal deceleration by normal landing distance then:

  If B > A then we will use A and give a warning message.

  If B < A then we will use B. No warning message is required in this situation.

ix. Improved the cleared to position in takeoff behind take off using time separation: Cleared to position in takeoff behind take off should start counting from the start rolling

time for ACs in the same take off position or ACs in takeoff positions located behind. However, for ACs in takeoff positions located further down the runway, cleared to position should start counting from the time the departing AC passes the takeoff position.

x. Improved the cleared to position in takeoff behind landing using time separation: Cleared to position in takeoff behind landing should start counting from the touchdown time if the touchdown is after the takeoff position. However, if the takeoff position is located after the touchdown, cleared to position should start counting from the time the landing AC passes the takeoff position.

xi. Improved the validation of Flight Performance that Max is always larger than Min.

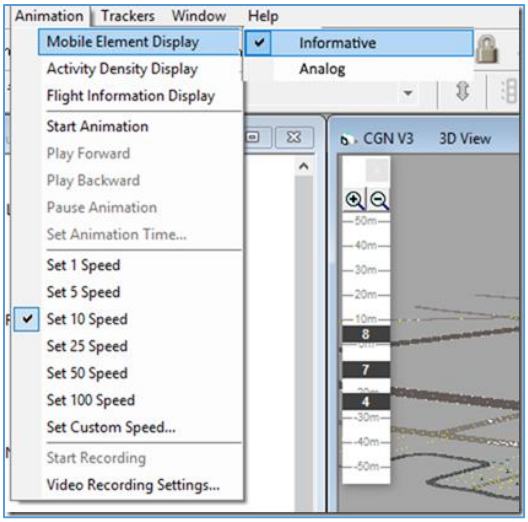
l. Landside related enhancements:

i. Improved the naming rules while defining landside object. The reserved characters "; , ( ) - \" and space key would not be allowed in Landside Facility Name.

ii. Added the option in landside to let the vehicle continue to the parking facilities after the passenger has gotten off the vehicle.

m. Internal software maintenance, code refactoring and algorithm improvements.

- **2.0.0.101 (Released on 27 April 2017, requires an active Maintenance Assurance Program (MAP) subscription on 27 April 2017.)**
  - **a. Licensing**
    - i. Transoft Solutions' license system is now used (Aviation Research Corporation license system used previously).
  - **b. Report enhancements:**
    - i. Terminal Queue Length, Density, Space Throughput and Processor Throughput reports measurement interval is now up to seconds (instead of minutes).
    - ii. Airside Taxiways Delays report shows the segment of the taxiway where the delay occurred.
  - **c. Mobile Element Display can now be Informative or Analog:**



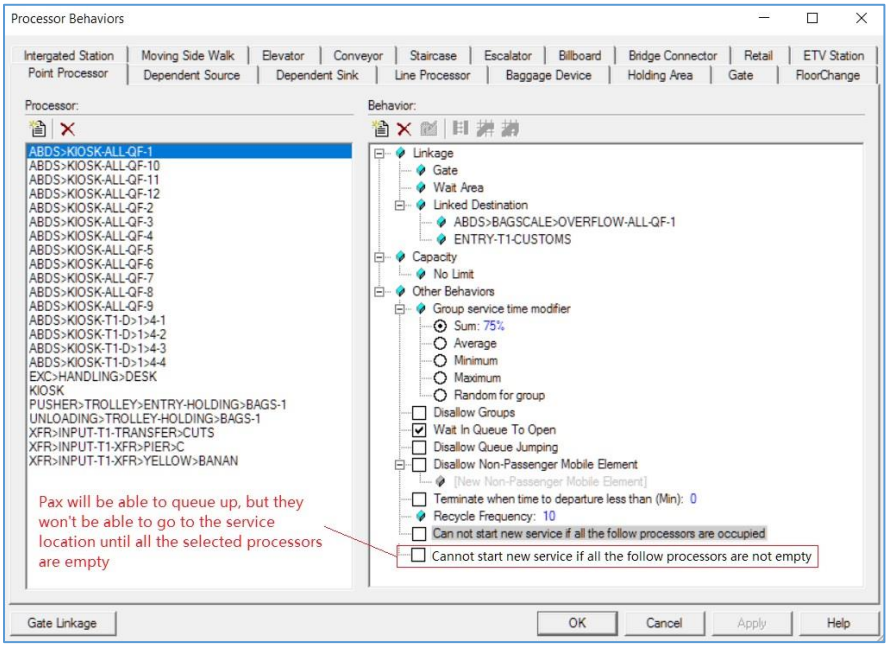
d. **Improvement on the Tow off strategy engine.**

e. **Added the maneuverability functions as is in AutoCAD.**

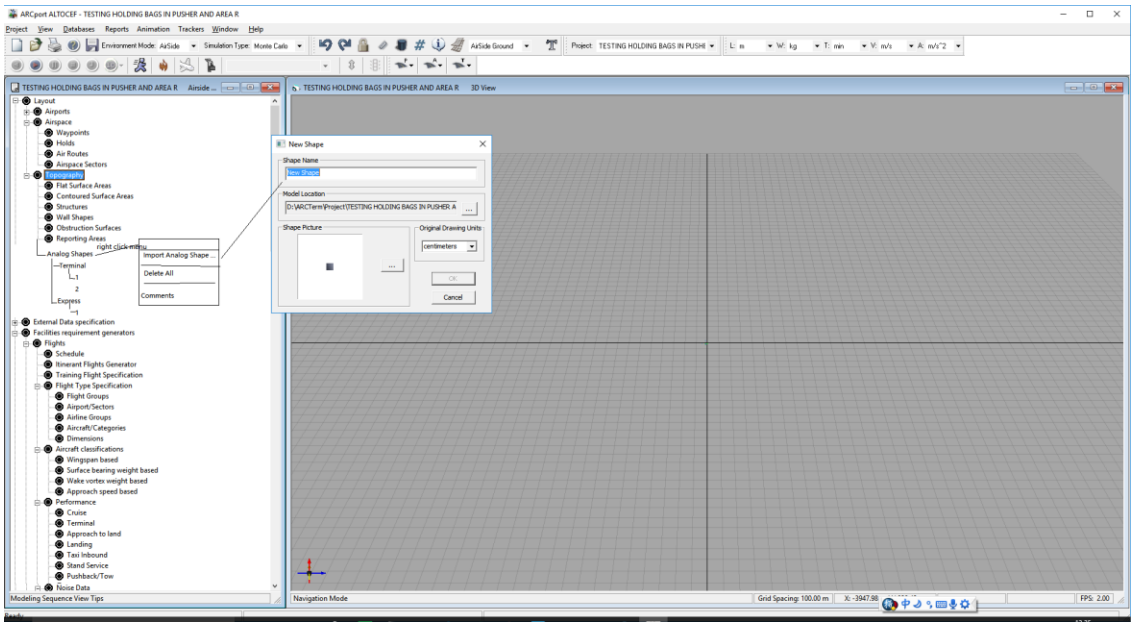
f. **Added new error message information regarding conflicts between flight plans and flight routes during simulation.**

g. **ArcPORT will automatically use the high performance Nvida graphic cards, it here is one.**

h. **Added a Behavior function to set that a processor cannot start service if some other/s processors are not empty:**



i. **Complete 3D models of Terminal and Buildings can be imported into ArcPORT Airside:**

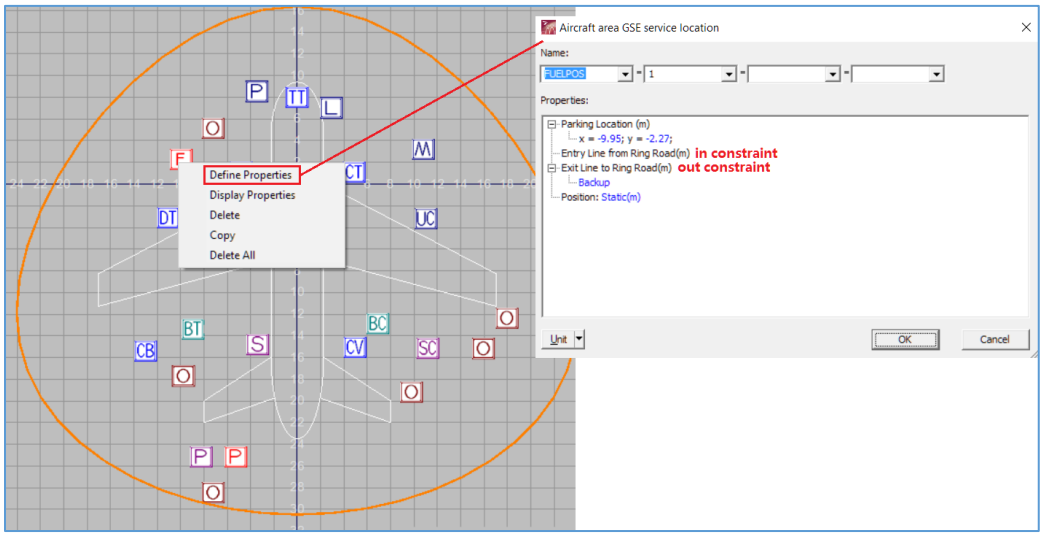


j. GSE Improvements:

i. PaxBus Parking Spot drive in and out lines can be deleted now.

ii. In the service location specification:

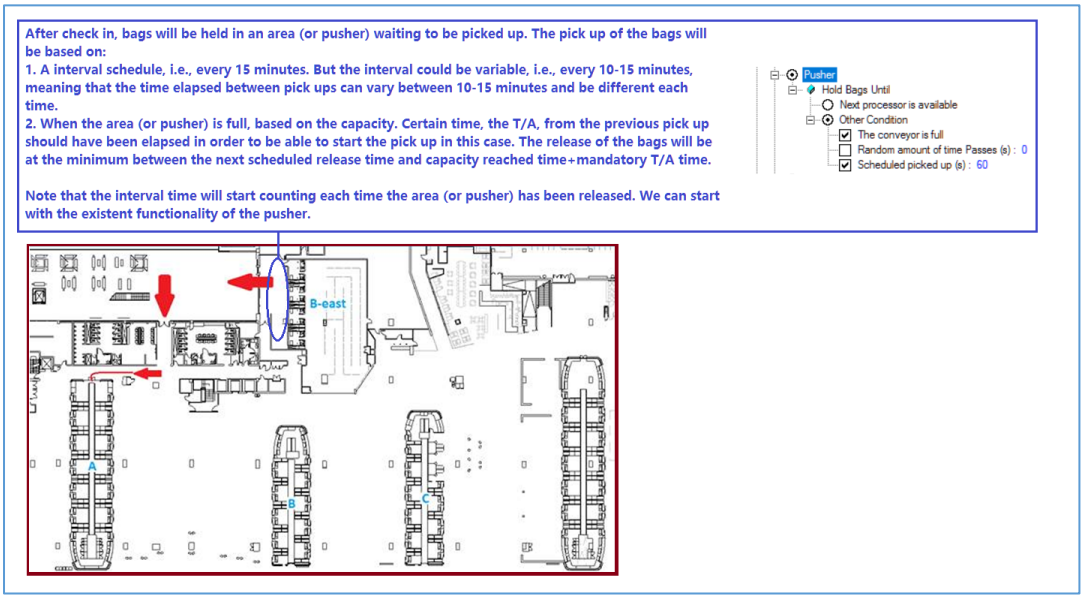
- In/out constraints to/from the service location from/to the ring road can be defined. Right click on the Relative service location and select Define Properties:



- The out constraint can be defined as a drive out or as a backup.
- The service can be defined as static (the vehicle provides the service in one location) or dynamic (the vehicle will move around the AC with a defined path to give the service)

k. BHS related enhancements:

i. Added a function to schedule baggage pick up after check in.



ii. EBS/ETV improvements.

iii. Added downtime conveyor function that allows to simulate the impact when a conveyor is down for a certain amount of time repeatedly.

l. Internal algorithm improvements to decrease simulation time.

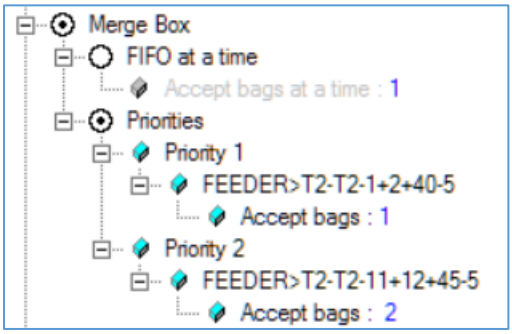
- **1.30.2.0 (Released on July 15, 2016)**

  This release needs to install first the **ArcPORT Resource Package 59.0.**

  a. BHS related enhancements:

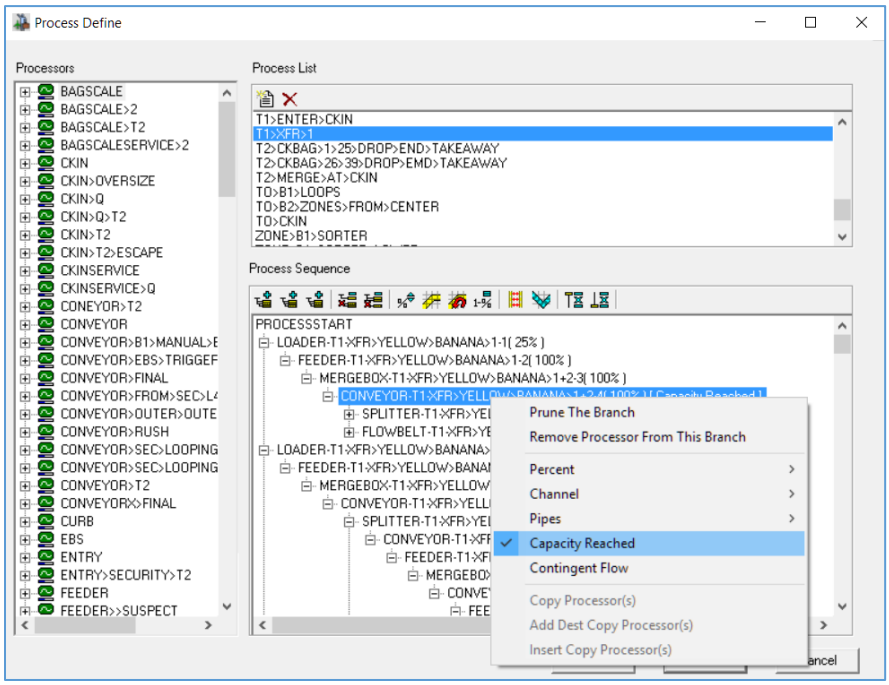
  i. Early bag storage. ArcPORT is capable to recreate early bag storages on BHS. Contact support@arc-us-ca.com for more information.

  ii. Improvement on the merge box functionality: priorities can be set between the merge box's feeders.

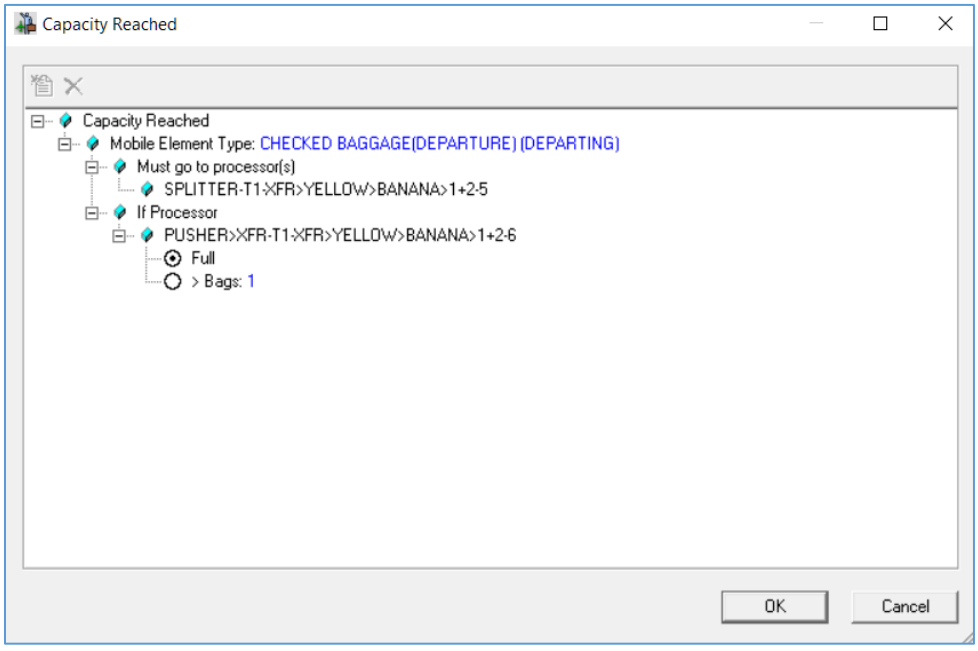


  iii. Capacity reached: this new functionality allows to choose a branch based on if the capacity at a certain processor have been reached. The steps to create a strategy are as follows:

- Right click on any processor of a flow and go to Flow condition → Capacity Reached. If in a process, right click and select Capacity Reached:

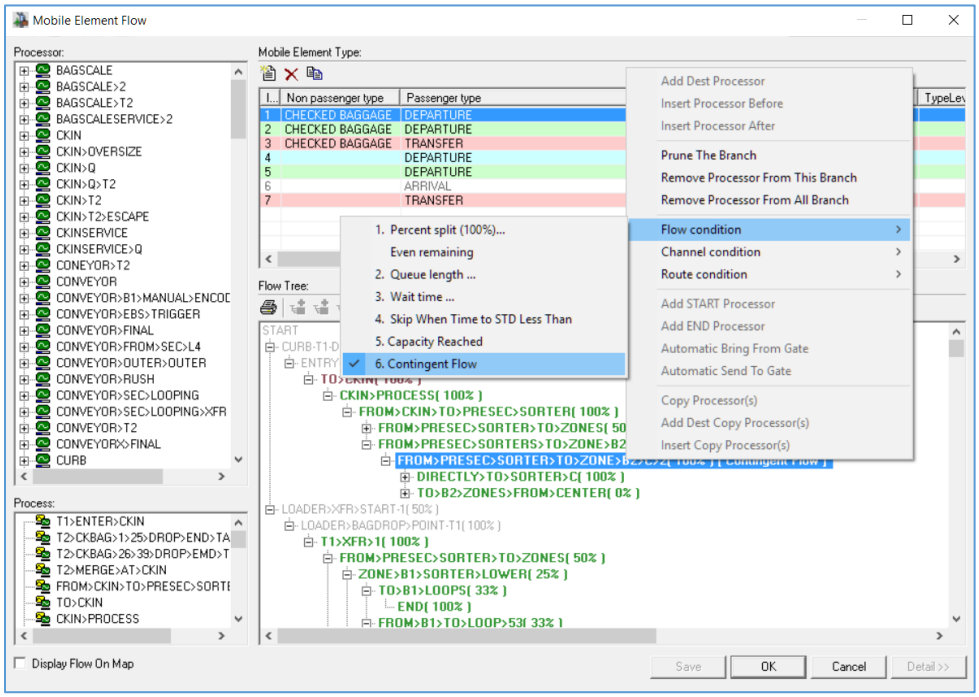


- The below GUI will pop up. User will need to select the passenger type that will be affected, the destination (*Must go to processor(s)*) and the condition of a certain processor's capacity:

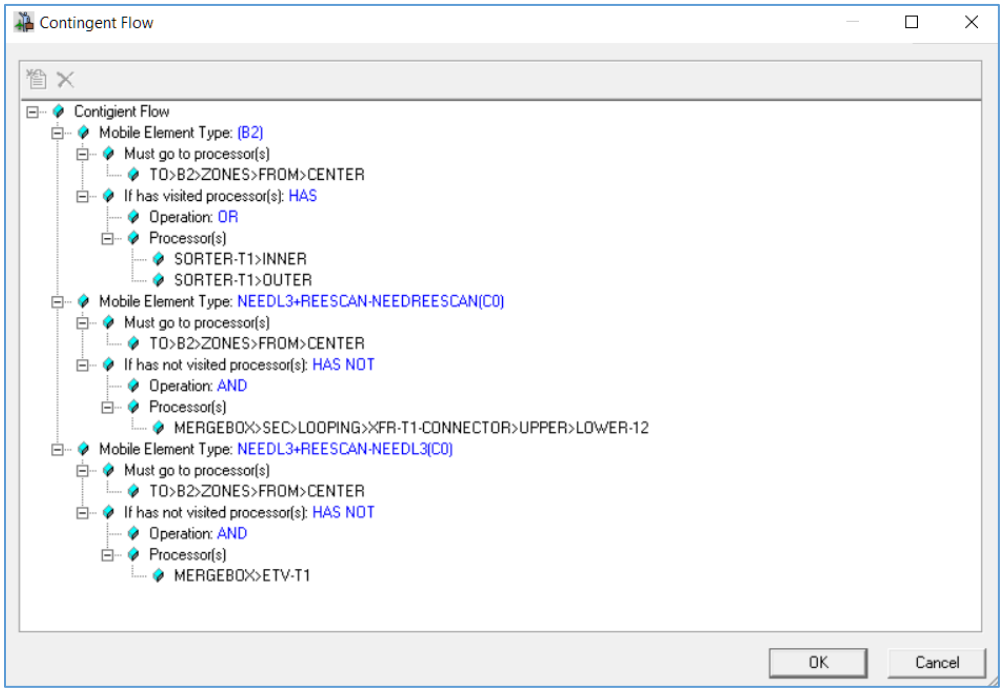


iv. Contingent flow: this new functionality allows to choose a branch based on if a processor has been previously visited. The steps to create a strategy are as follows:

- Right click on any processor of a flow and go to Flow condition → Contingent flow. If in a process, right click and select Contingent flow:



- The below GUI will pop up. User will need to select the passenger type that will be affected, the destination (*Must go to processor(s)*) and the condition of if a certain processor or processors have been visited:



v. Sorter enhancement: bags will keep looping inside the sorter until there is an exit flowbelt available for them.

b. Landside related enhancements:

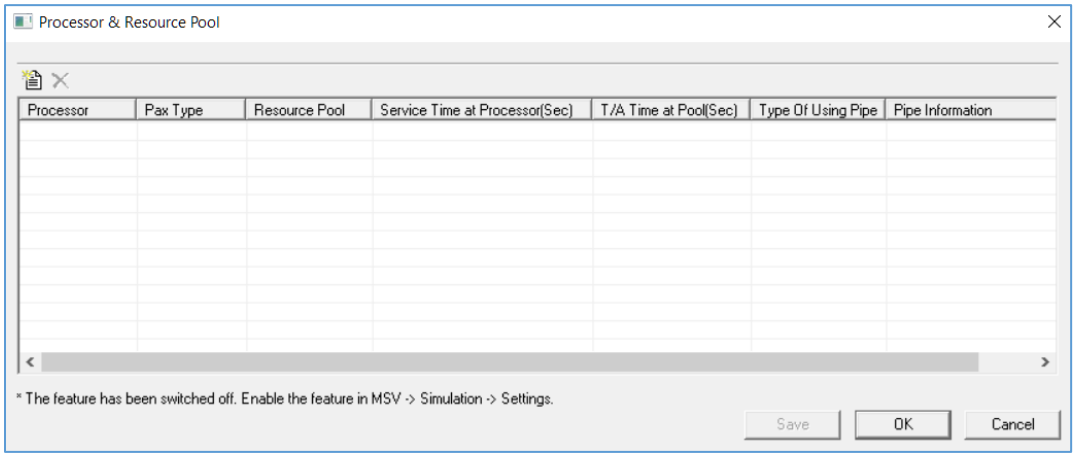
i. Added tollgates functionality.

ii. Added stretch vertical profile functionality (like in the stairs and escalators on the terminal).

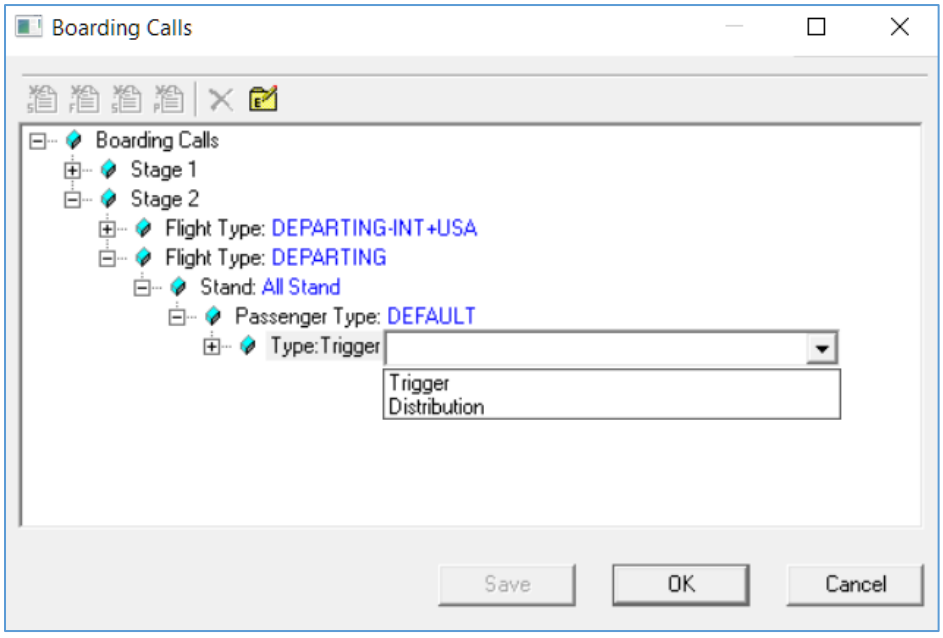
c. Terminal related enhancements:

i. When doing multiple runs, a new column in the simulation status window has been added indicating the Run number to which the error message belongs.

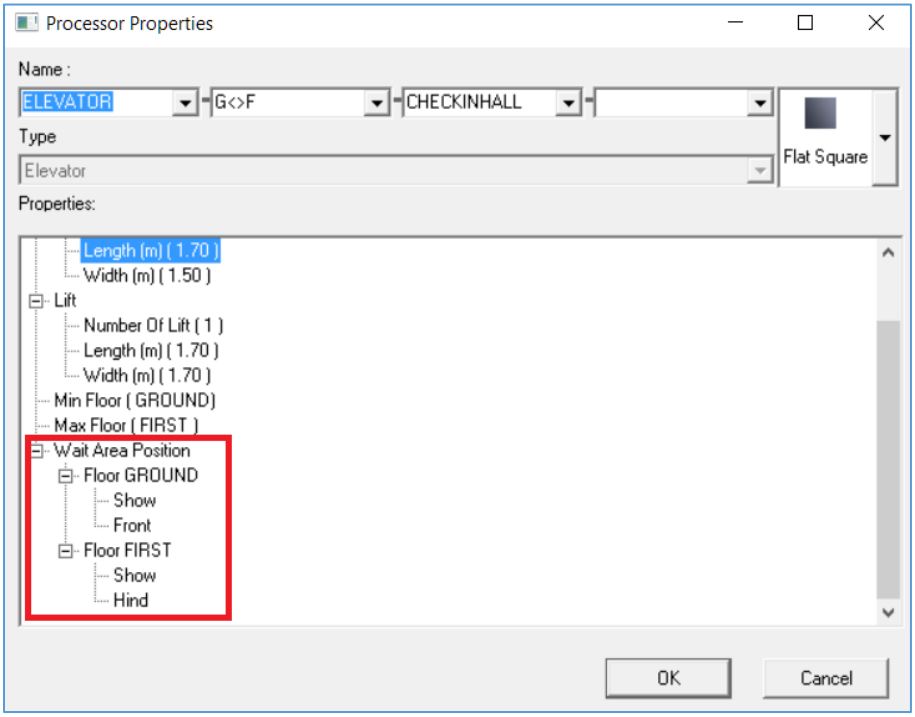
ii. Added a T/A time for resources in the pool:



iii. Added functionalities to boarding calls: it is possible to choose between a continuous distribution or a set of triggers.



iv. Elevator enhancement: Added an option to show or hide the elevator in each floor:



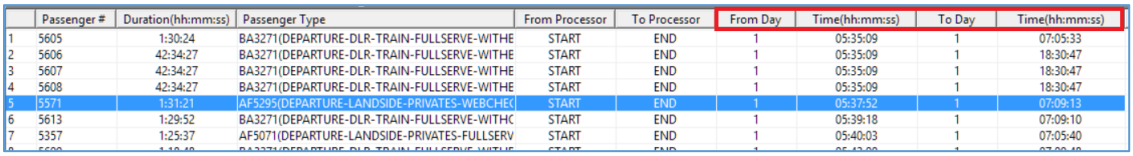
d. Ferry and Cruise Terminals related enhancements:

i. Added Ferry and cruise shapes.

ii.

e. Report related enhancements:

i. Enhancement in Time in Terminal report: added new columns to the detailed report.

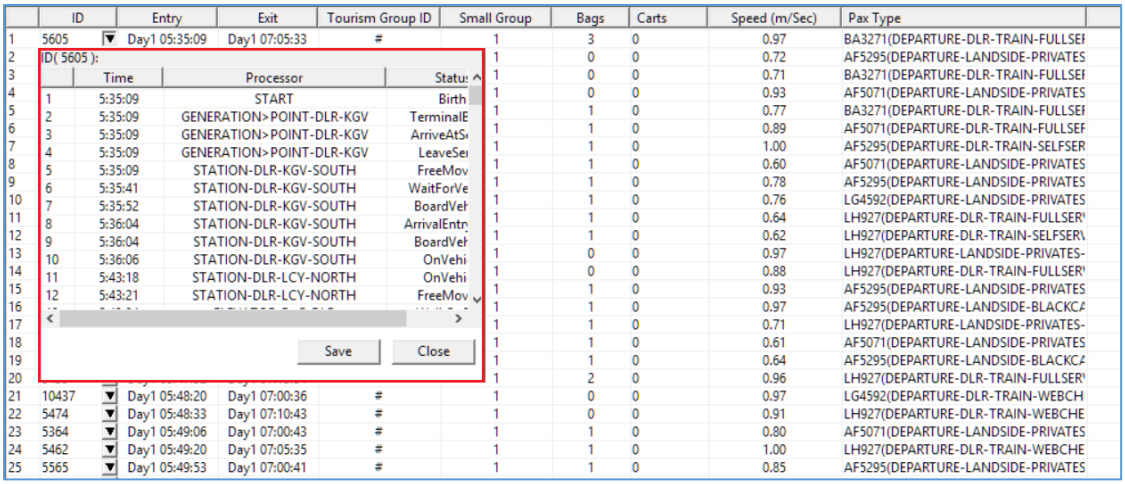


	Passenger #	Duration(hh:mm:ss)	Passenger Type	From Processor	To Processor	From Day	Time(hh:mm:ss)	To Day	Time(hh:mm:ss)
1	5605	1:30:24	BA3271(DEPARTURE-DLR-TRAIN-FULLSERVE-WITHE	START	END	1	05:35:09	1	07:05:33
2	5606	42:34:27	BA3271(DEPARTURE-DLR-TRAIN-FULLSERVE-WITHE	START	END	1	05:35:09	1	18:30:47
3	5607	42:34:27	BA3271(DEPARTURE-DLR-TRAIN-FULLSERVE-WITHE	START	END	1	05:35:09	1	18:30:47
4	5608	42:34:27	BA3271(DEPARTURE-DLR-TRAIN-FULLSERVE-WITHE	START	END	1	05:35:09	1	18:30:47
5	5571	1:31:21	AF5295(DEPARTURE-LANDSIDE-PRIVATES-WEBCHE(	START	END	1	05:37:52	1	07:09:13
6	5613	1:29:52	BA3271(DEPARTURE-DLR-TRAIN-FULLSERVE-WITHC	START	END	1	05:39:18	1	07:09:10
7	5357	1:25:37	AF5071(DEPARTURE-LANDSIDE-PRIVATES-FULLSERV	START	END	1	05:40:03	1	07:05:40

ii. Enhancement in Taxi Delay Report: added new columns to the summary part. Now we have columns based in the Total Delay (sum of interventions) and columns based on the interventions.

iii. Enhancement in Gate operations report: added the column *PHASE* to the detailed report to indicate the phase of the aircraft (departure, arrival, tow off).

iv. Enhancement in Activity Log report: it is possible to see the complete list of events of any passenger's life:

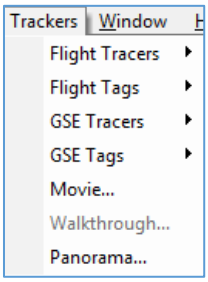


- **1.29.168.0 (Released on February 6, 2016)**

  This release needs to install first the **ArcPORT Resource Package 56.0.**

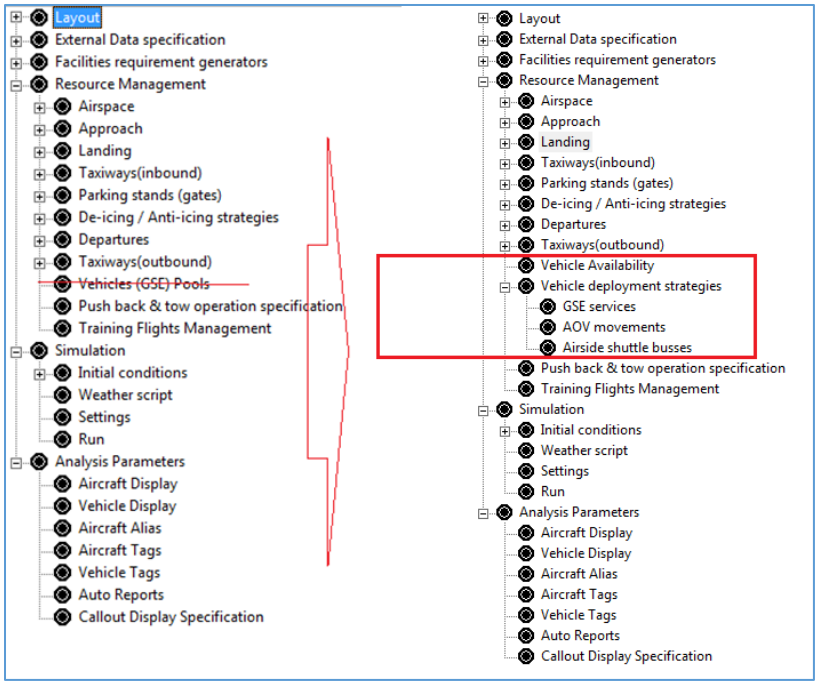
  a. Emergency Evacuation enhancement. ArcPORT is capable to do a complete emergency evacuation simulation analysis on any kind of building: Airport terminals, arenas, train stations, skyscrapers, metro stations, etc. Contact support@arc-us-ca.com for more information.

  b. Improvement on Trackers selection in Airside:

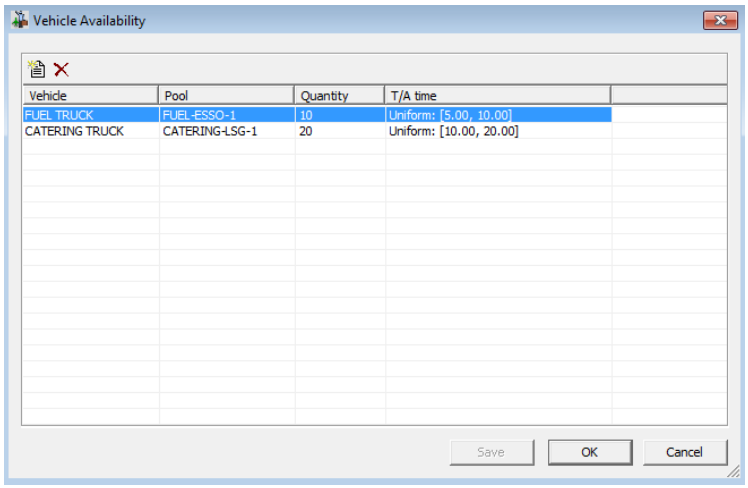


  c. New GSE deployment strategy: ArcPORT originally had an algorithm to deploy vehicles from pools as a function of time relative to the flight operation and independent of one another. The new version introduces the concept of Relative Deployment, which is that at some level of completion of a certain vehicle service, another vehicle will be deployed. This new concept leads to certain enhancements in the software:

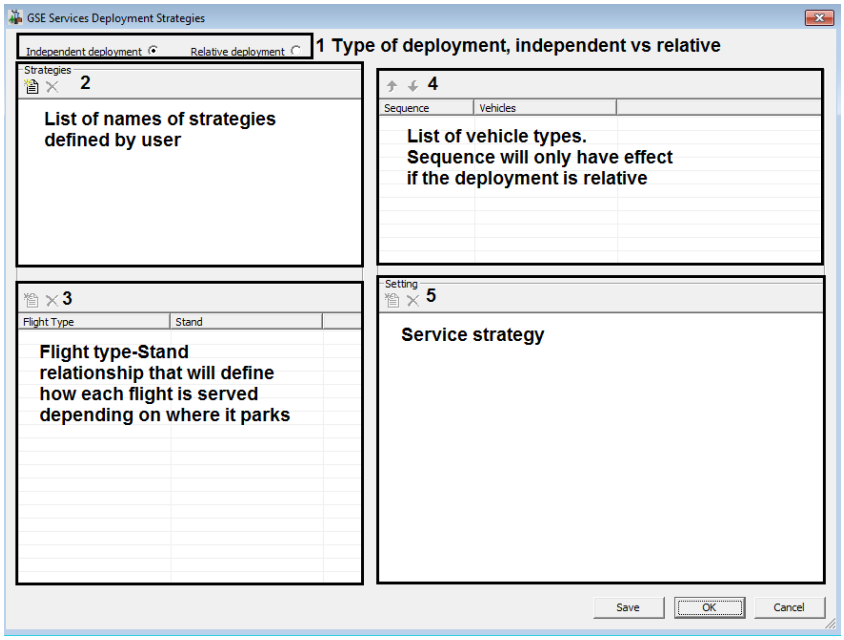
  i. Modification of the MSV:



ii. Vehicle Availability GUI will be used to define how many vehicles are in each of the defined pools and the T/A:

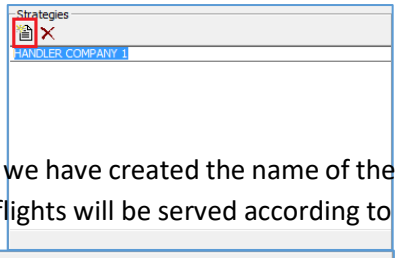


iii. GSE services GUI will have 5 parts:

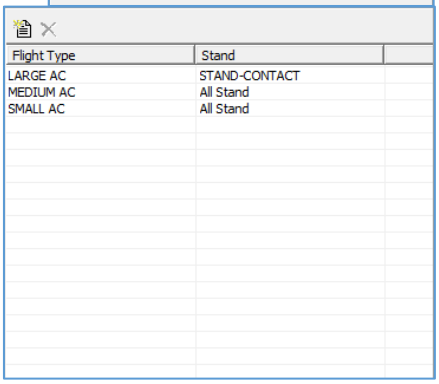


The steps to create a full GSE deployment strategy are as follows:

- First of all, we need to fill the pools with vehicles using the Vehicle Availability GUI.
- Then, we will open the GSE Services GUI and select the type of deployment.
- Next Step is to give a name to our Service strategy by clicking on the *New* button and type in the name:

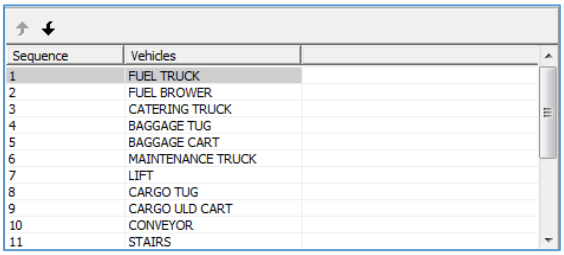


- Once we have created the name of the strategy we will proceed to select how flights will be served according to their type and parking location:



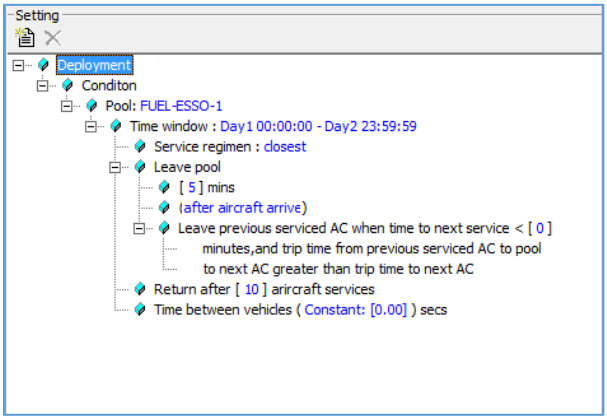
- For each of the flight type-stand combination we can select a sequence for the vehicles. Note that if it is independent deployment the sequence

will be irrelevant because the deployment will be done relative to the time of operation of the flight:

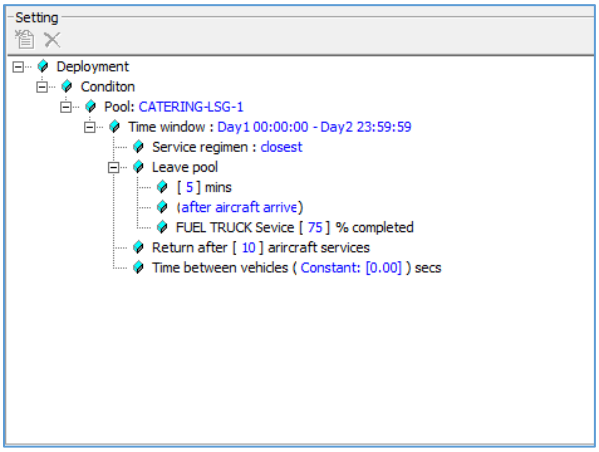


Sequence	Vehicles
1	FUEL TRUCK
2	FUEL BROWER
3	CATERING TRUCK
4	BAGGAGE TUG
5	BAGGAGE CART
6	MAINTENANCE TRUCK
7	LIFT
8	CARGO TUG
9	CARGO ULD CART
10	CONVEYOR
11	STAIRS

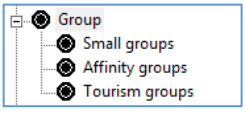
- Finally, we can define how the deployment will be done. If we selected independent deployment, for each vehicle we will need to define the settings:



If we selected relative deployment, the first vehicle in the list will be configured as if it was independent deployment. The second vehicle on the list will be configured considering the first vehicle. The third vehicle in the list will be configured considering the first and the second vehicle and so on:



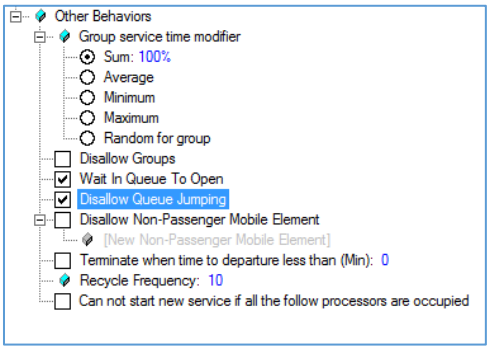
d. Passenger Groups enhancement: ArcPORT originally had a functionality to create group of passengers with the same passenger's types. The development of the Landside and



OnBoard generated the need for more detailed grouping features. With the new release, there will be 3 different kind of Groups:

i. Small groups. This is the original group functionality.
ii. Affinity groups. This will allow creating groups of passengers with different passenger types with specific behaviors. It is still under development.
iii. Tourism groups. This will allow generating passengers being delivered to the terminal in busses with the characteristic of waiting in a specific area until all members of the group have arrived.

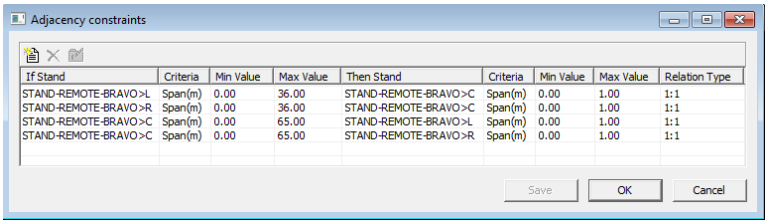
e. Queue Jumping for non-fixed queues can be enabled or disabled in behaviors:



f. Terminal Report enhancement:

i. In the *Reports→Passenger→Time in Queues*, Entry Time and Exit Time columns have been added. This column shows passenger entry and exit time on the queue.
ii. In the *Reports→Passenger→Time in Service*, Entry Time and Exit Time columns have been added. This column shows passenger entry and exit time on the service location.

g. Added the 1:1 feature in the Airside→Resource Management→Parking stands (gates)→Stand Constraints→Adjacency Constraints→Stand Name based:



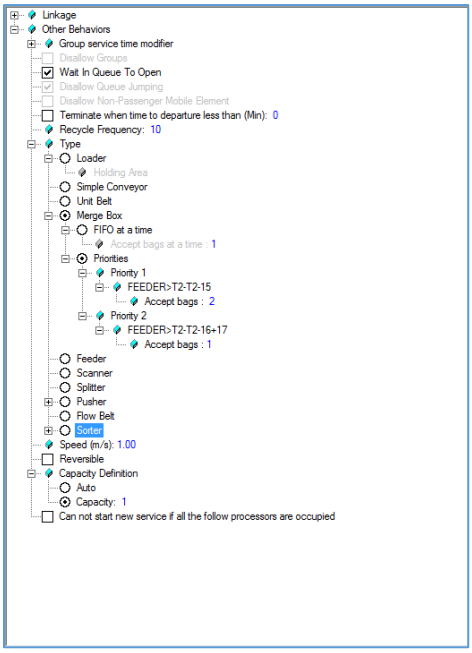
h. Moving Sidewalk definition and usage: moving sidewalks are geographically defined in the same way than any other processor by dragging a shape and defining its properties. Once defined, moving sidewalks have to be embedded in a pipe (no reference is needed on the flow) in order to be able to be used. The way passengers are told to use or not to use a sidewalk is defined under Processors→Moving Sidewalk. This GUI contains three tabs:

i. General: to define the width and the speed of the sidewalk.

ii. Walk Probability: to define the percentage of passengers that will walk on the sidewalk. This means that the walking speed will be added to the sidewalk speed.

iii. Usage Probability: to define the percentage of passengers that will choose to go on the sidewalk.

i. Merge box new functionality: merge box can be set to accept bags from feeders in a certain priority or in a FIFO basis:



j. Occupied assigned stand action criteria enhancement. In the airside, when an arrival AC lands and its schedule stand is still occupied by another AC, some reassignment should happen. In ArcPORT there are several options:

i. *Go dynamically reassigned gate*. The AC, will be reassigned to another stand randomly that meets the stand constraints and the stand assignment rules. The AC will be reassigned when it exits the runway.

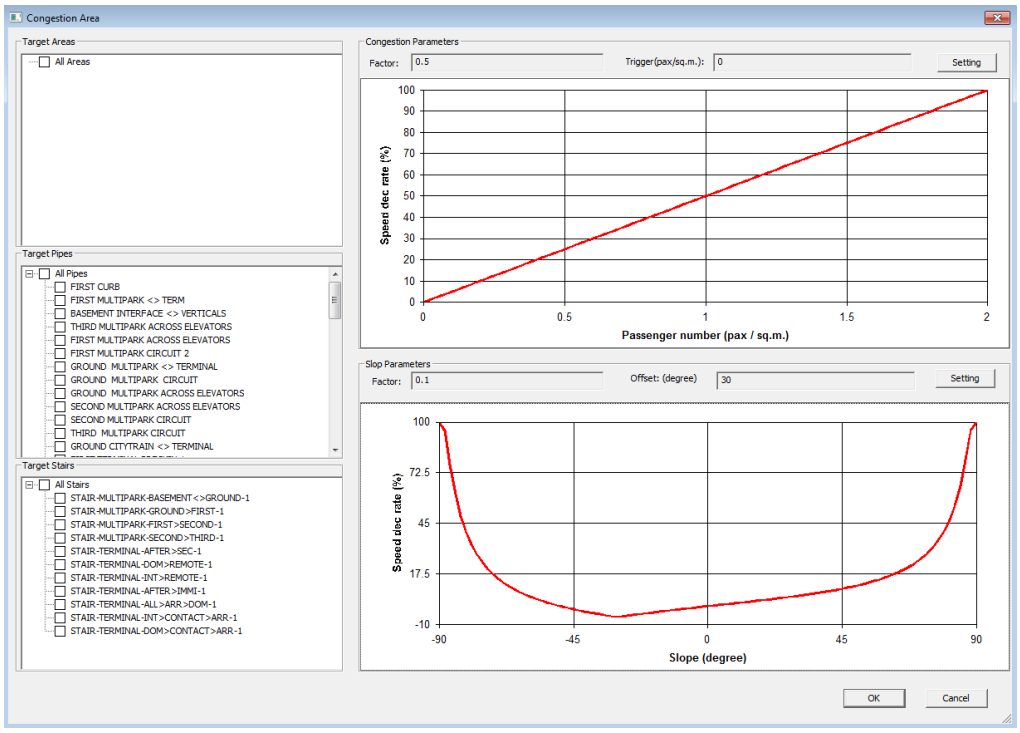
ii. *Stop short of intersection/taxi interrupt line in the inbound Route till assigned stand free*. The AC will stop at an intersection or at an interrupt line and wait until its stand is free. Several intersections and interrupt lines can be selected in the GUI, but they must be in the AC inbound route in order to take effect. If there are several intersections or interrupt lines selected in the route, first one will be chosen. If none of the selected intersections or interrupt lines are in the route, AC will Go *dynamically reassigned gate*.

There are several other options currently under development.

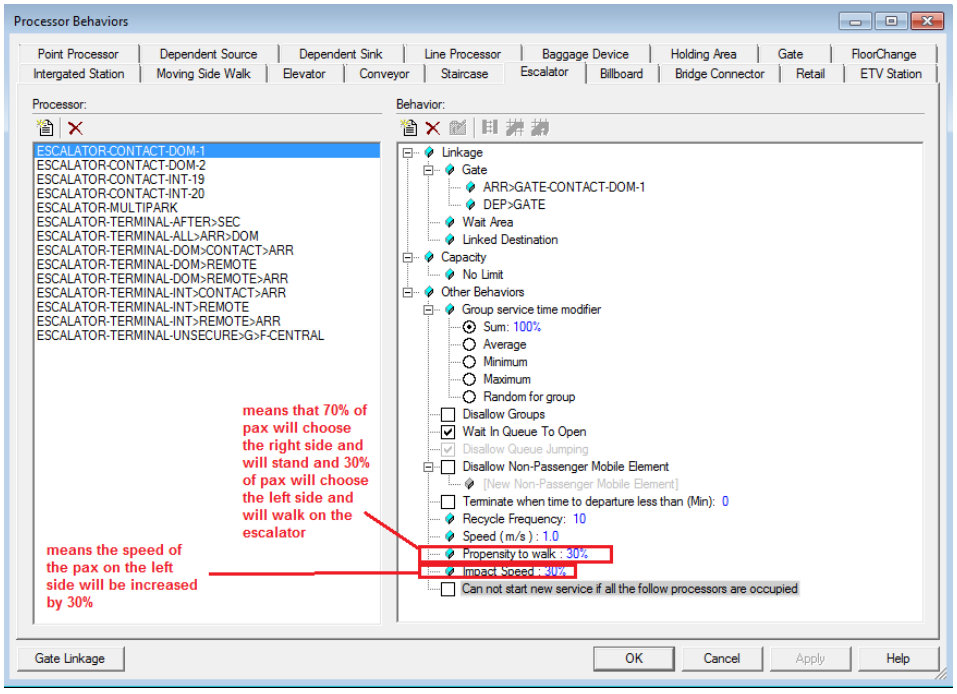
k. Airside Report enhancement:

i. In the *Reports→Aircraft→Operational*, Actual Land Time, Schedule Arr Time, Actual Arr Time, Schedule Dep Time, Actual Dep Time and Actual Take off Time columns have been added.

l. Congestion impact function has been added to stairs:



m. Escalators enhancement. In behaviors we can set the percentage of passengers that will use the right side (standing) and the left side (walking on the escalator):



n. Intermediate stand and tow off times can be inserted directly into the schedule.

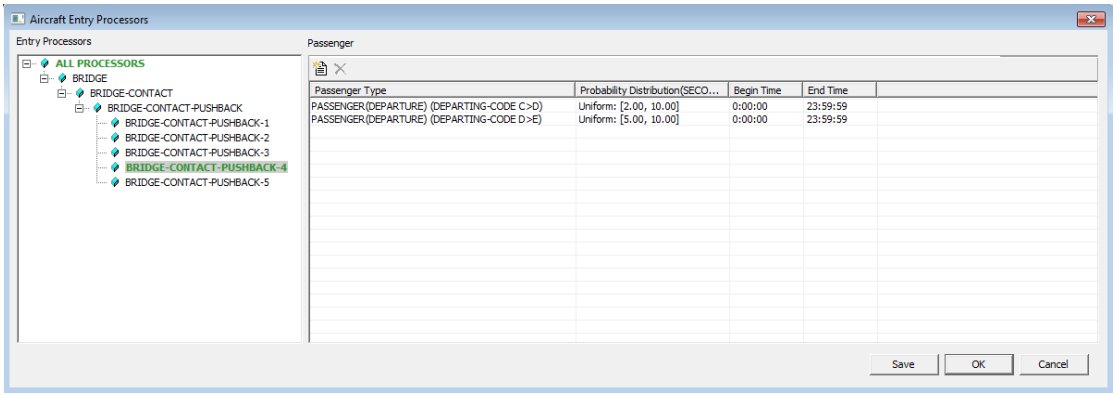
- **1.29.68.0 (Released on February 12, 2015)**

  This release needs to install first the **ArcPORT Resource Package 43.0**.

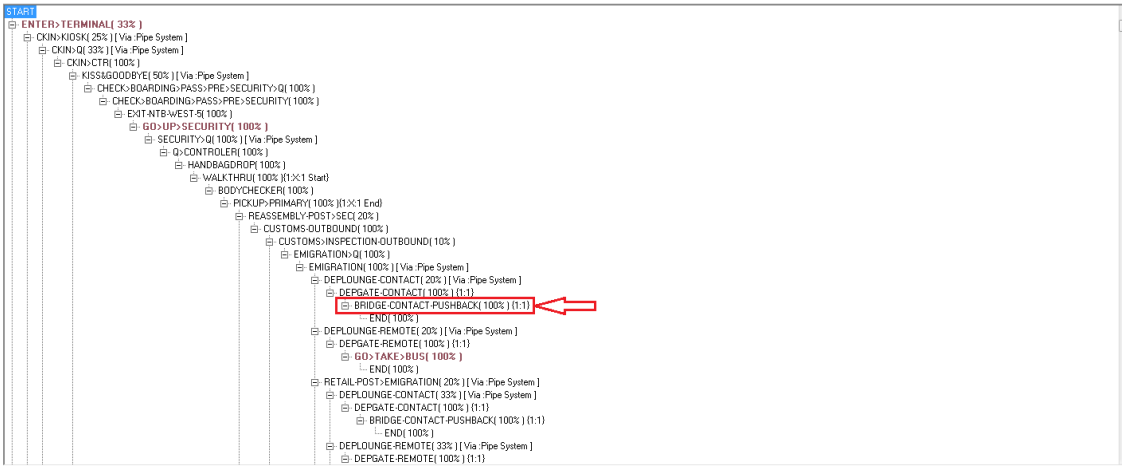
  a. Airside Fixed: Runways can be used for Inbound and Outbound taxi routes definition.

  b. Terminal: Added the possibility of applying service time at the AC door when boarding using a bridge:

  i. Under *Processors →Service Times →Aircraft Entry Processors* you can define for different passenger types the time they will spend at the AC door by assigning a time distribution to the bridge from which passengers are boarded. The result will be that passengers will spend a random amount of time at the head of the bridge, generating a queue along the bridge:



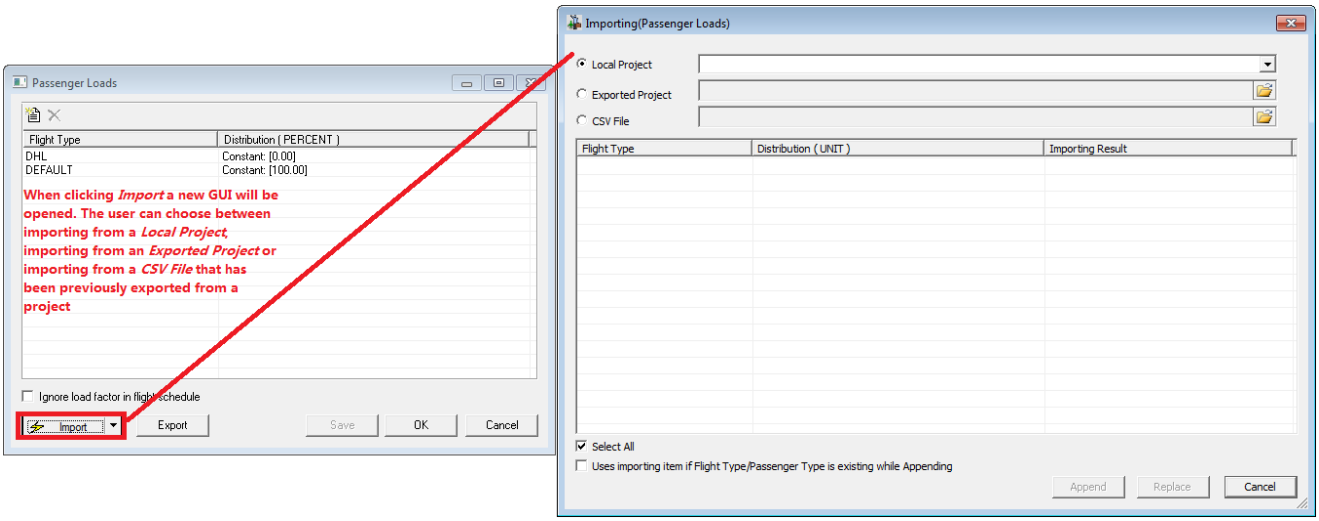
  ii. In order for the service time to be active, the bridges must be included in the flow as if they were another processor:



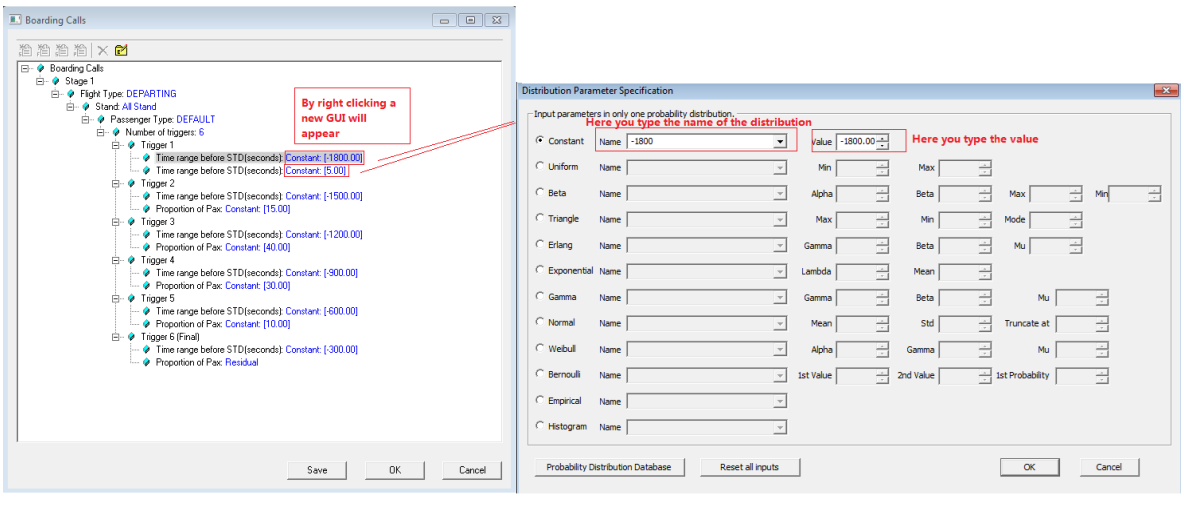
  c. Internal software maintenance.

- **1.29.59.0 (Released on December 25, 2014)**
  - **a.** Internal software maintenance.

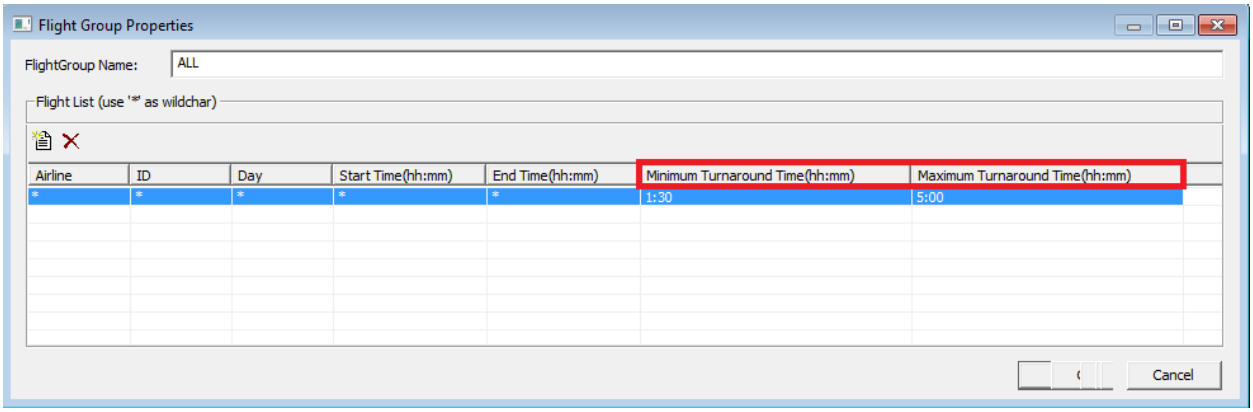
- **1.29.56.0 (Released on December 15, 2014)**
  This release needs to install first the **ArcPORT Resource Package 40.0** and **ArcPORT Admin Update 2.0**.
  - **a.** Terminal: Implementation of Export/Import for the following GUIs:
    - i. Flights Delays
    - ii. Flights Load Factors
    - iii. Flights Aircraft Capacities
    - iv. Passengers Group Size
    - v. Passengers Lead-Lag Time Distribution Visitor STA Trigger
    - vi. Passengers In-Step Distribution
    - vii. Passengers Side-Step Distribution
    - viii. Passengers Speed
    - ix. Passengers Visit Time
    - x. Passengers Entry Flight Time Distribution



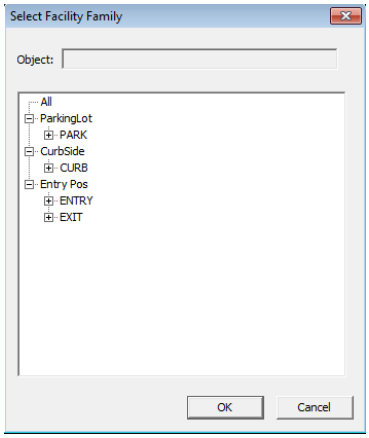
  - **b.** Terminal: Implementation of Quickly Input Distribution GUI (only in Boarding Calls GUI for now):



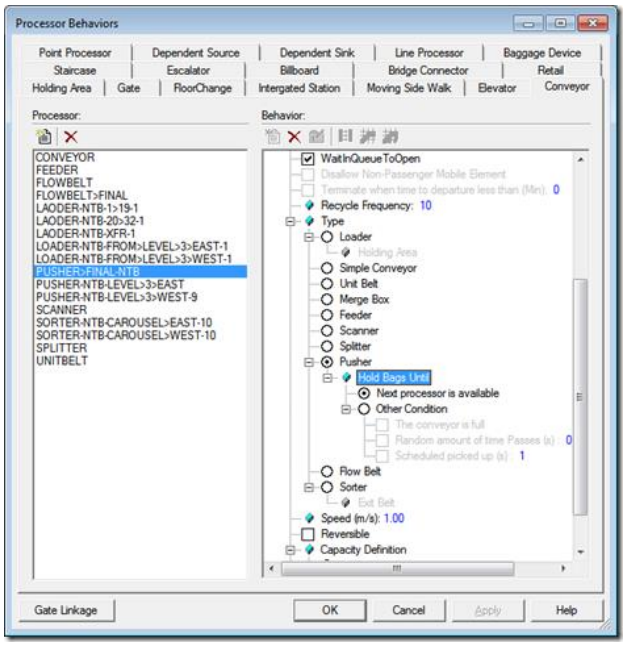
c. Terminal: Implementation of T/A filter in Flight Groups:



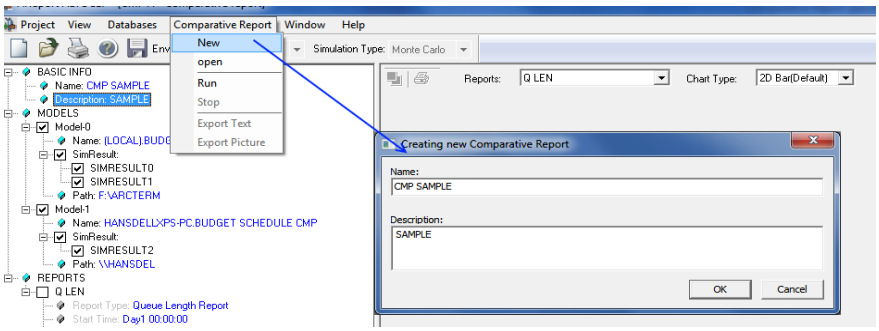
d. Landside: Non-Passenger Related can have set Parking Lots, Curbsides and Entry/Exits as a destination:



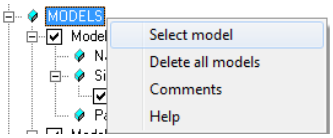
e. Airside NOTE on Baggage tug: When running Airside and Terminal with baggage tug and carts set on the airside, the correct configuration for the final pusher of the BHS in Terminal is *Hold Bags Until Next processor is available*:



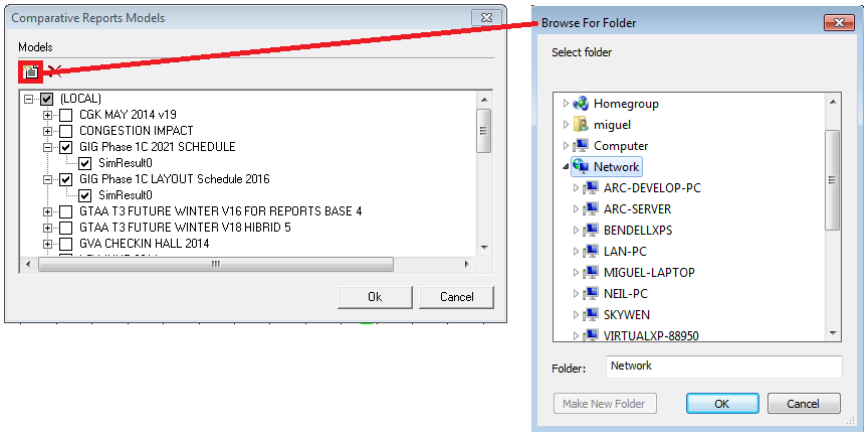
- **1.29.49.0 (Released on October 24, 2014)**
  - **a.** Internal software maintenance.
  - **b.** Comparative Reports: The purpose of Comparative reports is to compare the simulation results between models and runs which have different management settings, then give summary reports, presenting by data and graphs:
    - i. Start ArcPORT and select Comparative Report→New. In the Creating new Comparative Report insert the name and the description. You can also select Comparative Report→Open and a list of comparative reports will be shown to be selected.



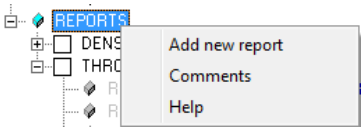
    - ii. Once the comparative report is created, the models &runs that will be compared should be selected. Right click on MODELS and select the models:



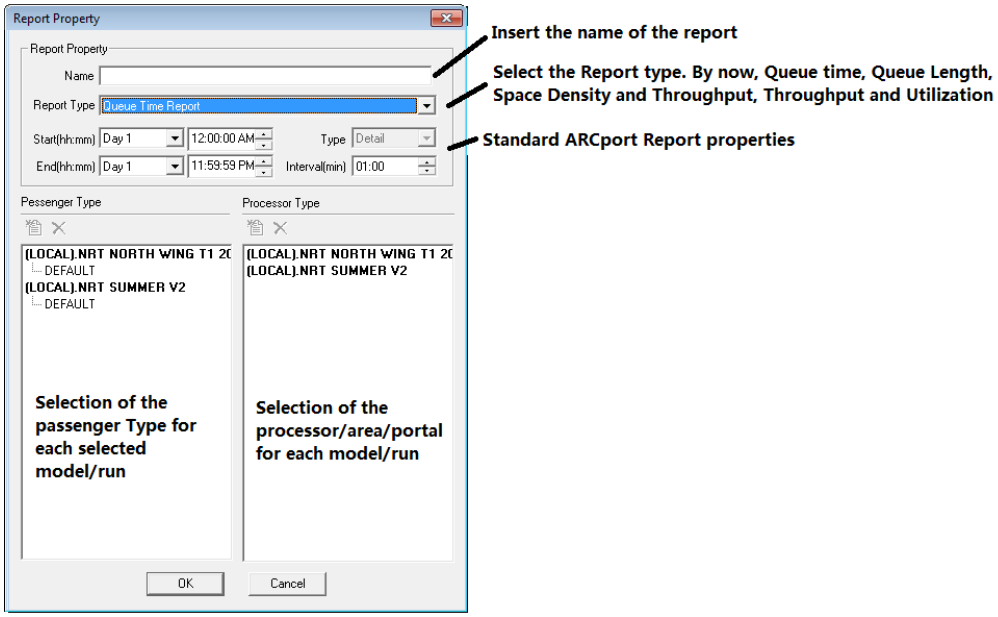
A GUI like below will pop up. You can also select models that are in other computer within your network:



    - iii. Third step is to select the reports to be run. Right click on REPORTS and select Add New Reports:



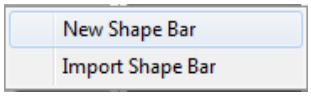
The report property GUI will pop up. This GUI behaves similarly than the standard report ArcPORT GUI:



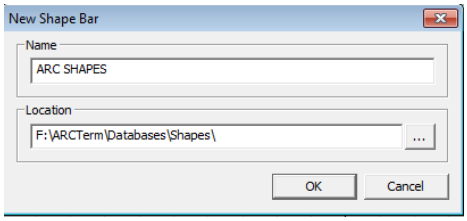
iv. Run the comparative report.

- **1.29.48.0 (Released on October 21, 2014)**
  This release needs to install first the **ArcPORT Resource Package 39.0** and **ArcPORT Admin Update 2.0**.
  a. Internal software maintenance.

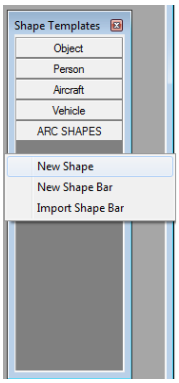
- **1.29.47.0 (Released on September 16, 2014)**
  a. Added functionality to import 3D shapes into ArcPORT. Users can create their own 3D shapes in DXF format and import them into any ArcPORT model:
  i. Right click on the shape bar and then click on *New Shape Bar*:



  ii. Give a name to the new shape bar you want to create and choose a location. By default

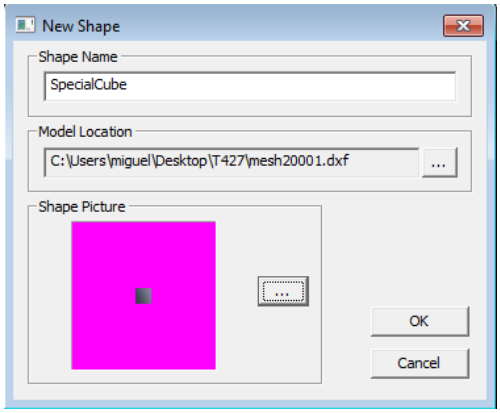


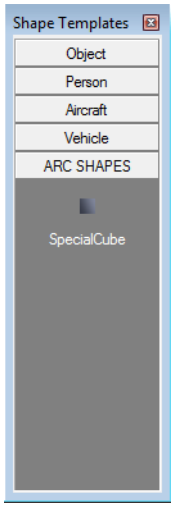
the location will be under
DRIVE:\ARCTerm\Databases\Shapes,
but you can choose any other location:



iii. Once the new shape bar is created, right click to import a new shape into the bar:

iv. Give a name to the shape and select the dxf file and the view of the shape in the shape bar (normally a bmp picture). Click OK and the shape will be added to the new created bar:



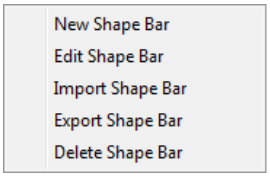


v. The new shape is ready to be used with all the characteristics and functionalities from the default ArcPORT Shapes available – array, rotate, raise, copy, scale, etc.

Note: If the shape is deleted from the bar list or the shape bar is deleted, all the processors using that shape/s will turn into a *Default* shape 

.

Note II: DXF files could be very big in size, thus, in order to keep the size of the model as light as possible, the user defined shapes are not exported when the model is exported. The new created shape bars can be exported in a zip file (by right clicking on the bar name) and be sent by email or other methods to and then be imported into a model:

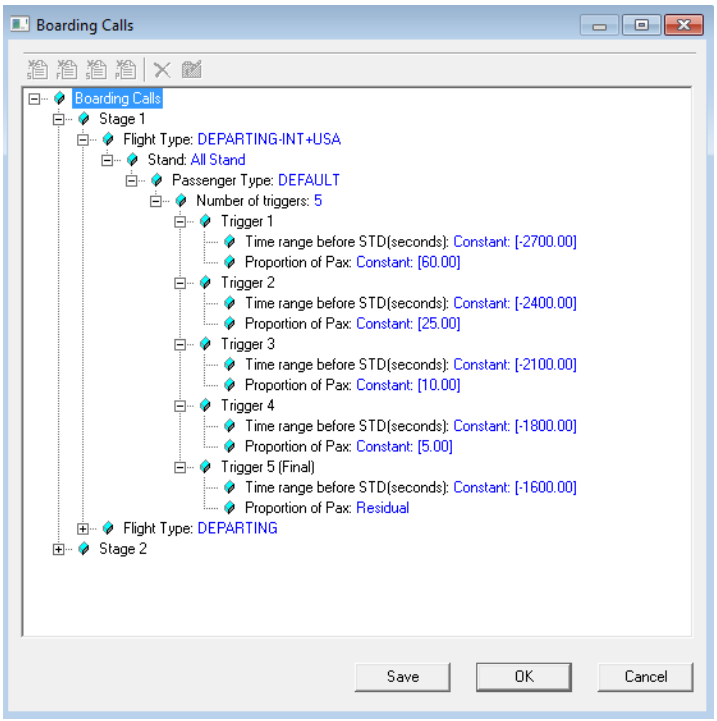


b. Internal software maintenance.

- **1.29.46.0 (Released on August 28, 2014)**
  - **a.** Added the multi-run report functionality on the Reports→Aircrafts→Delays.
  - **b.** Internal software maintenance.

- **1.29.45.0 (Released on August 21, 2014)**
  - **a.** Internal software maintenance.

- **1.29.44.0 (Released on August 8, 2014)**
  - **a.** Implemented a new Boarding Call GUI that involves the following design:
    - i. Boarding calls are a function of Flight type, Stand, Stage and Named Passenger type. Note that this is the first instance in ArcPORT where we need to select Fight Type and named passenger types separately.
    - ii. The number of triggers, the time or occurrence of each trigger, and the proportion of passengers affected by each trigger, are themselves random variable (distributions) and the concept of a histogram is no longer valid.
    - iii. The final trigger will contain the residual proportion of passengers up to 100% that have not been assigned in previous triggers.



  - **b.** Extended the bridge functionality: one flight can be boarded using several bridges at the same time. Contact support@arc-us-ca.com for more information.
  - **c.** Improved the enroute Q functionality (Airside).

- **1.29.43.0 (Released on August 7, 2014)**
  - **a.** Internal software maintenance.

- **1.29.42.0 (Released on August 5, 2014)**
  - **a.** Internal software maintenance.

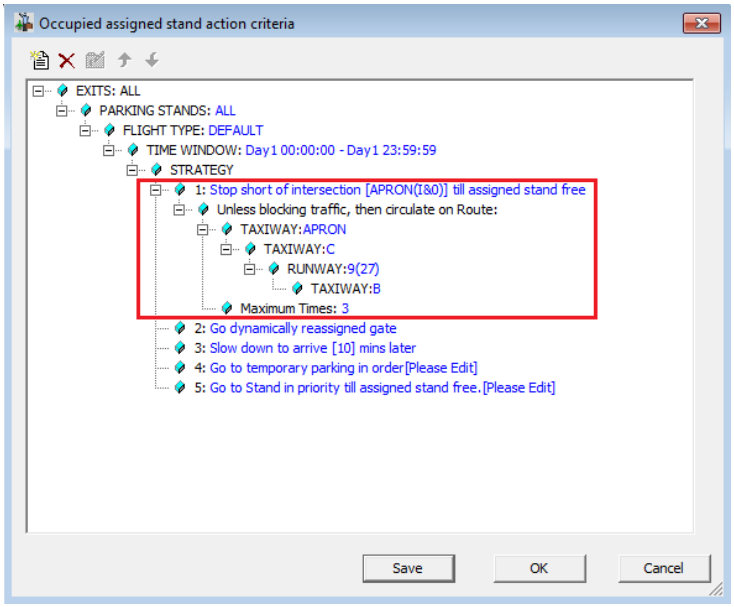
- **1.29.41.0 (Released on August 4, 2014)**
  - **a.** Internal software maintenance.

- **1.29.40.0 (Released on August 1, 2014)**
  - **a.** Internal software maintenance.

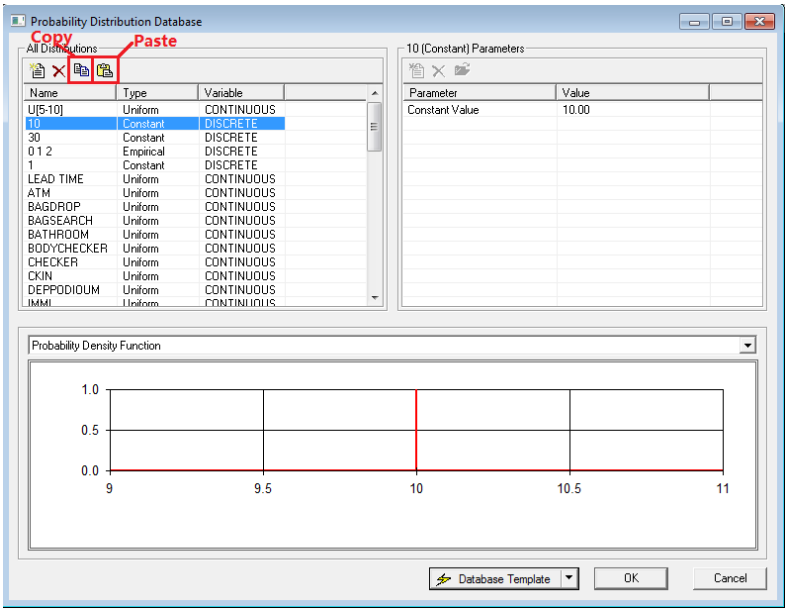
- **1.29.39.0 (Released on July 28, 2014)**
  - **a.** Fixed: Pushback conflicts (Airside).
  - **b.** Internal software maintenance.

- **1.29.38.0 (Released on July 18, 2014)**
  - **a.** Internal software maintenance.

- **1.29.37.0 (Released on July 15, 2014)**
  - **a.** Improved the Occupied assigned stand action criteria function by letting AC circulate on a specific route until the assigned stand is free (Airside):



  - **b.** Added a copy/paste function in the Probability Distribution Database (Terminal):

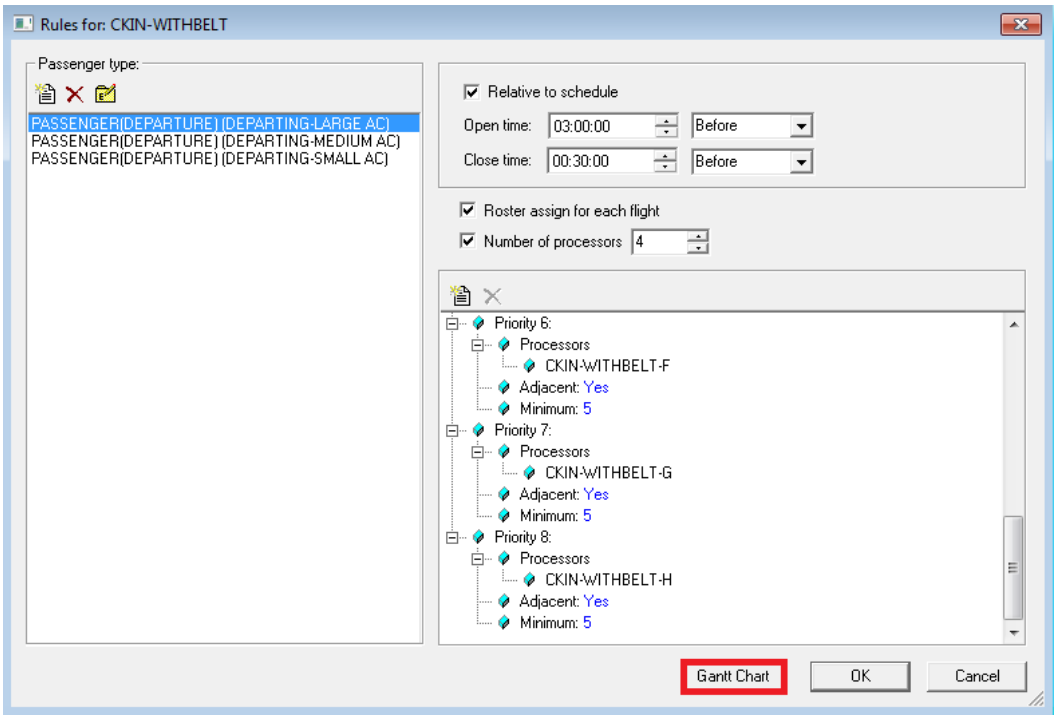


c. Added the functionality for defining Separations based on Approach Speed (Airside).

d. The direction of the curbside decision line will be automatically selected depending on the curbside passenger area location (Landside).

e. Added the Baggage Tug and Baggage Cart functionality (Airside): Bags in the pusher (usually last terminal processor for departure checked bags in terminal) will be picked up by Baggage Carts and brought to the Aircraft. On the other hand, arrival checked bags will be brought by Baggage Carts from the Aircraft to the arrival bag loaders (normally a line processor and the first terminal processor for arrival checked bags).

f. Roster improvement production version. Now we can see the Gantt chart and reposition all the check in allocation as we do with Stand, Arrival Gate and Departure Gate Assignment (Terminal):



g. Fixed compatibility issues with Windows 7.
h. Internal software maintenance.

- **v1.28.144.0 (Released on March 19, 2014)**
  a. Internal software maintenance.

- **v1.28.143.0 (Released on March 6, 2014)**
  a. Fixed: Animation of Baggage Tugs.

- **v1.28.142.0 (Released on March 5, 2014)**
  a. Internal software maintenance.

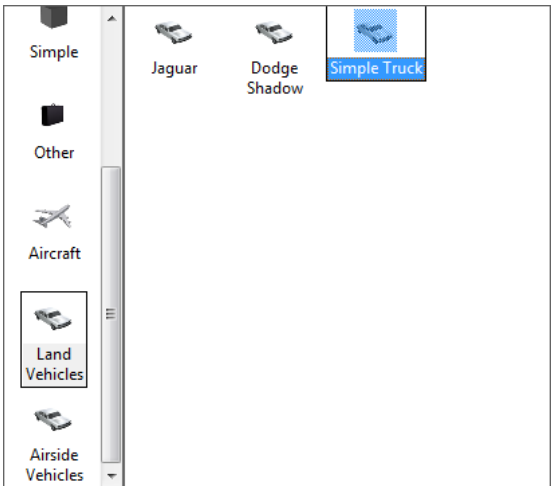
- **v1.28.141.0 (Released on March 3, 2014)**
  a. Internal software maintenance.

- **v1.28.140.0 (Released on February 26, 2014)**
  a. Internal software maintenance.

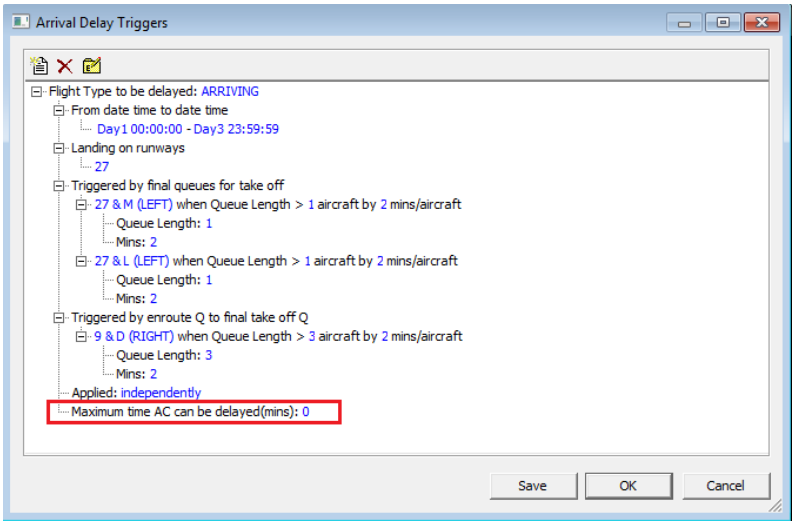
- **v1.28.139.0 (Released on February 20, 2014)**
  a. Internal software maintenance.

- **v1.28.138.0 (Released on February 20, 2014)**
  a. Internal software maintenance.

- **v1.28.137.0 (Released on February 19, 2014)**
  This release needs to install first the **ArcPORT Resource Package 36.0**
  a. Added the Simple Truck shape in the Terminal ME Display:

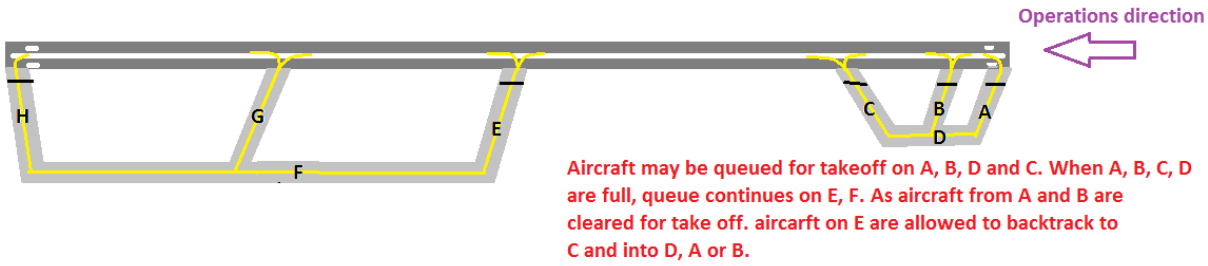


b. Added a constraint in the Arrival Delay Triggers GUI to avoid that a landing AC is delayed too much.



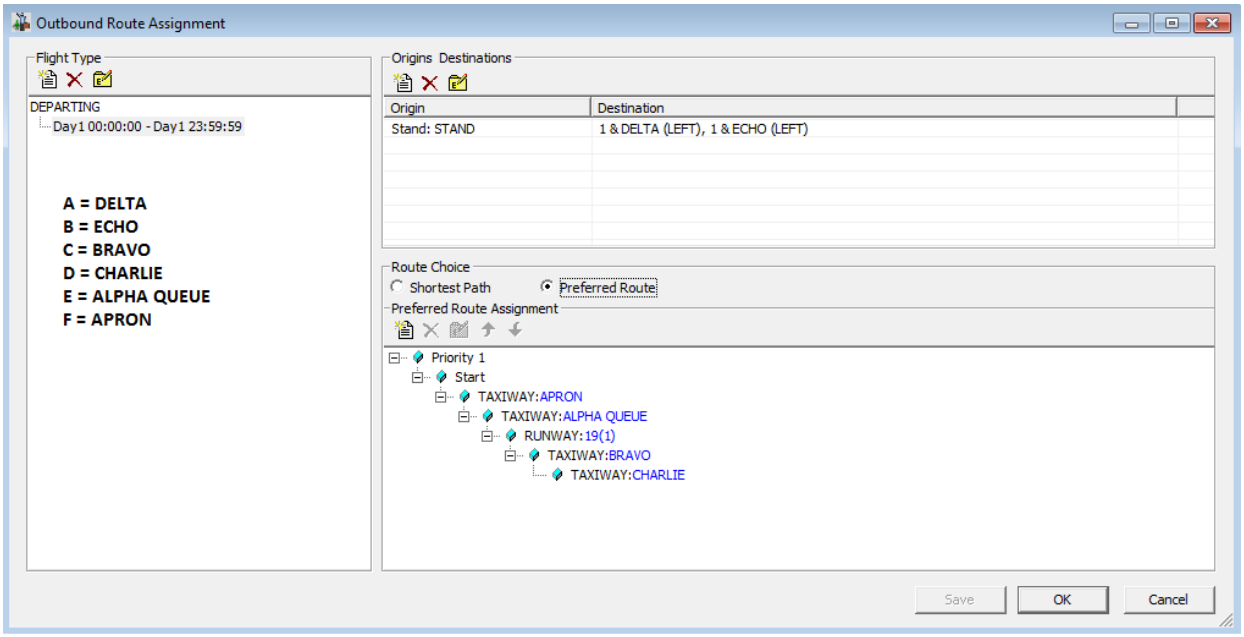
- **v1.28.136.0 (Released on February 15, 2014)**
  - **a.** Internal software maintenance.

- **v1.28.135.0 (Released on February 14, 2014)**
  - **a.** Added Enroute Q functionality to take into account when the runway is used in the outbound taxi route:

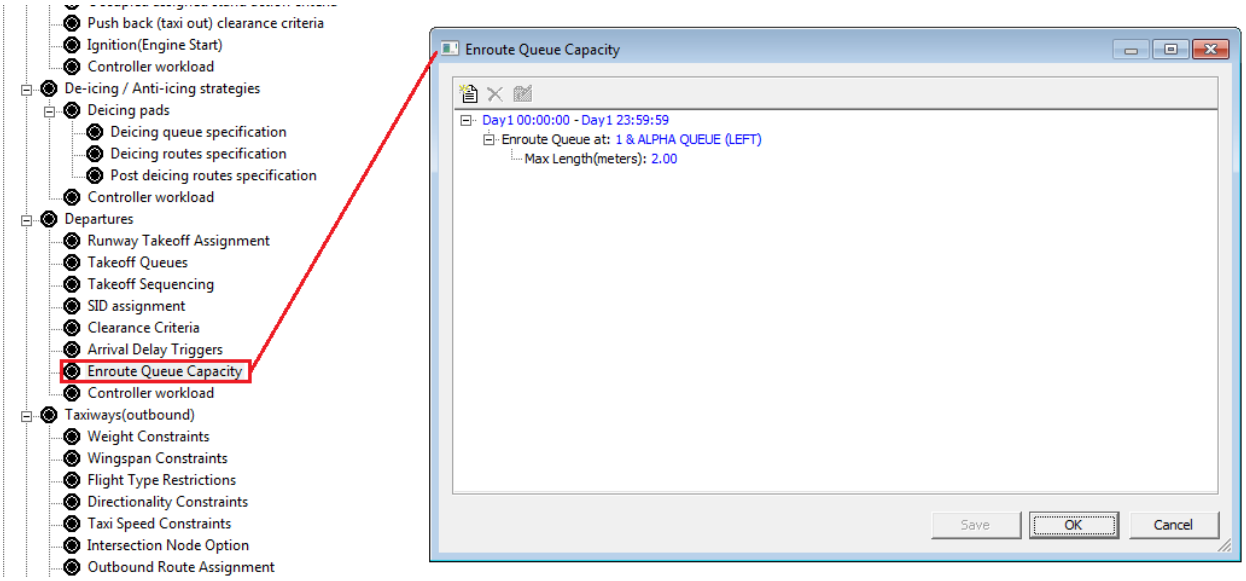


Follow below steps to set up the functionality:

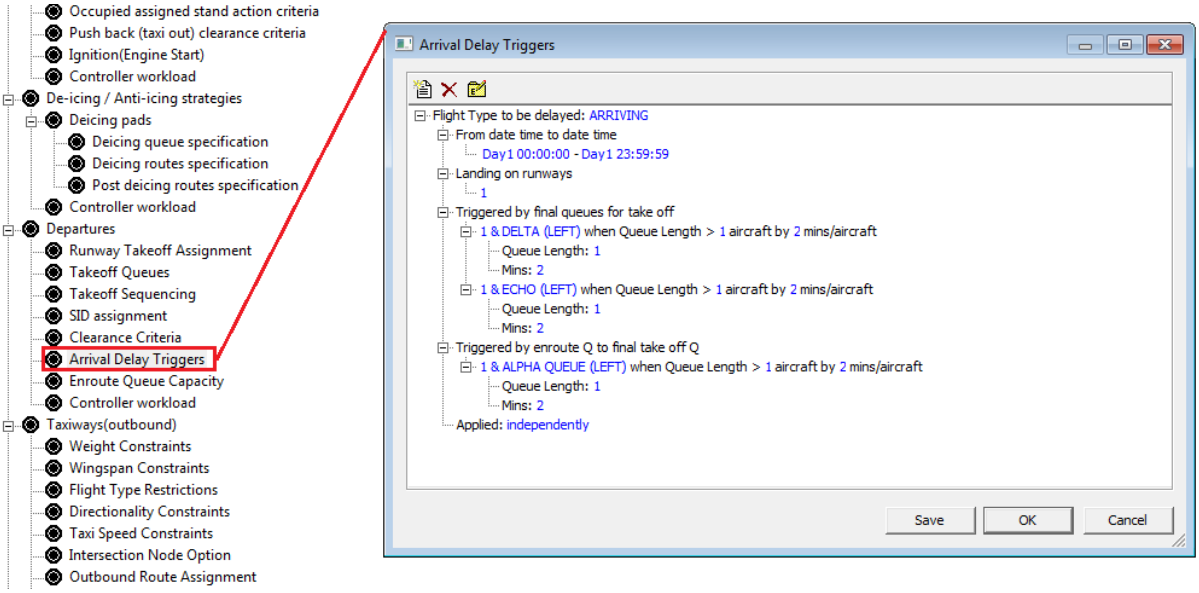
1. Define the outbound taxi route as follows:



2. Under Departures→Enroute Queue Capacity define the settings as desired, in the settings below if there is an aircraft waiting at E all others won´t push back. Note that while there is no aircraft waiting at E, several aircrafts might start pushing back:



3. Under Departures→Arrival Delay Trigger, define when an arrival will be delayed. In the case below, if there is one AC waiting either at Delta, or Echo or Alpha queue, an arrival will be delayed. Independently can be changed to Concurrently, which means that for delaying an arrival it must be one AC at Delta, one at Echo and one at Alpha queue.



- **v1.28.134.0 (Released on February 13, 2014)**
  - **a.** Internal software maintenance.

- **v1.28.133.0 (Released on February 11, 2014)**
  - **a.** Internal software maintenance.

- **v1.28.132.0 (Released on February 7, 2014)**
  - **a.** Internal software maintenance.

- **v1.28.131.0 (Released on January 27, 2014)**
  This release needs to install first the **ArcPORT Resource Package 35.0**
  - **a.** Internal software maintenance.

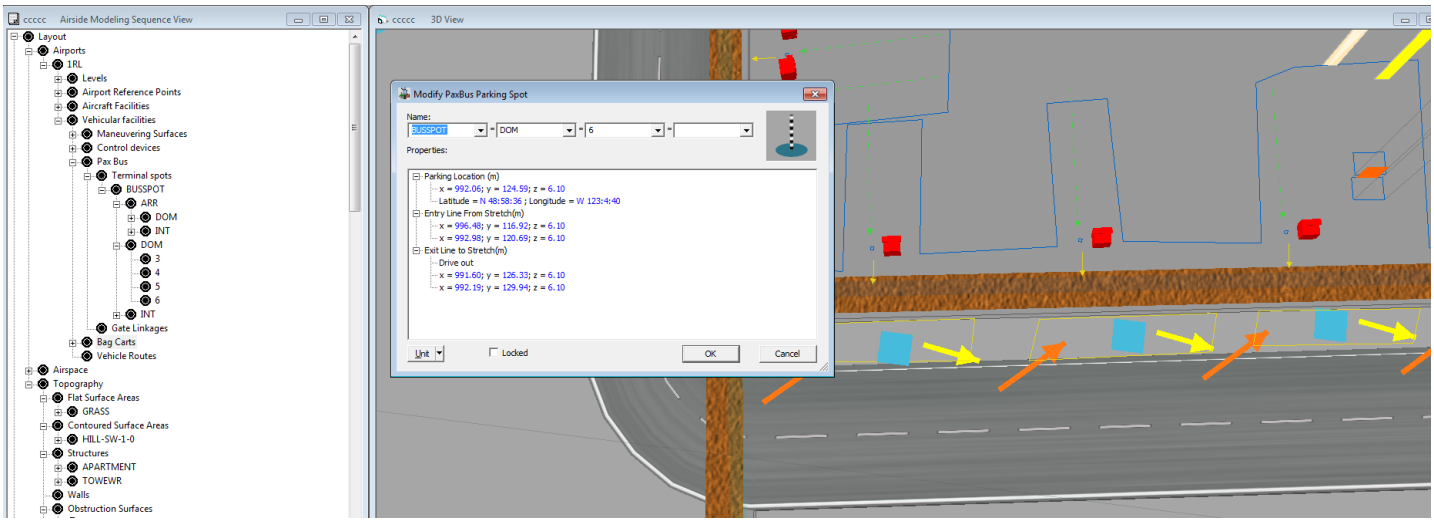
- **v1.28.130.0 (Released on January 23, 2014)**
  - **a.** Internal software maintenance.

- **v1.28.129.0 (Released on January 20, 2014)**
  - **a.** Internal software maintenance.

- **v1.28.128.0 (Released on January 17, 2014)**
  - **a.** Internal software maintenance.

- **v1.28.127.0 (Released on January 14, 2014)**
  - **a.** Internal software maintenance.

- **v1.28.126.0 (Released on January 10, 2014)**
    - **a.** Improved Bus parking using landside logic. Parking locations are now called bus spots and have: i) a Parking Location, which is a point where the head of the bus will be positioned, ii) an entry line from the stretch and iii) an exit line to the stretch.
      Gate linkages GUI that links parking positions and gates remains the same.



- **v1.28.125.0 (Released on January 7, 2014)**
    - **a.** Internal software maintenance.

- **v1.28.124.0 (Released on January 2, 2014)**
    - **a.** Internal software maintenance.

- **v1.28.123.0 (Released on December 19, 2013)**
    - **a.** Internal software maintenance.

- **v1.28.122.0 (Released on December 18, 2013)**
    - **a.** Taxi pool Queue can be multiline.

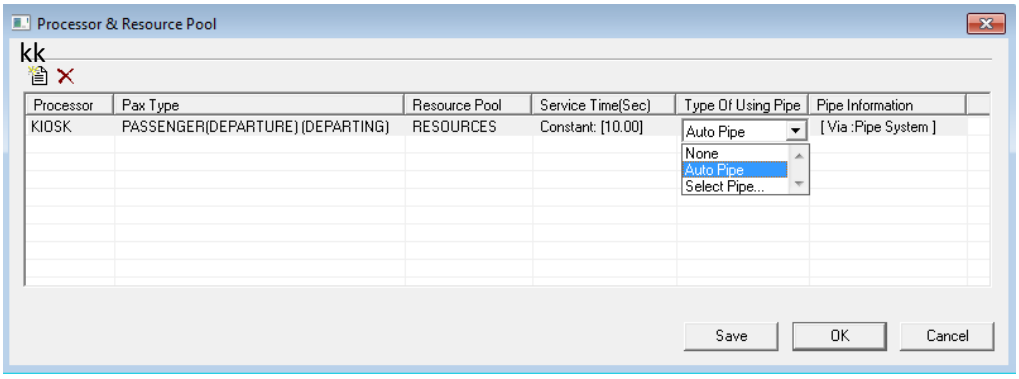
- **v1.28.121.0 (Released on December 13, 2013)**
    - **a.** Internal software maintenance.

- **v1.28.120.0 (Released on December 10, 2013)**
  This release needs to install first the **ArcPORT Resource Package 33.0**
    - **a.** Landside upgrade.

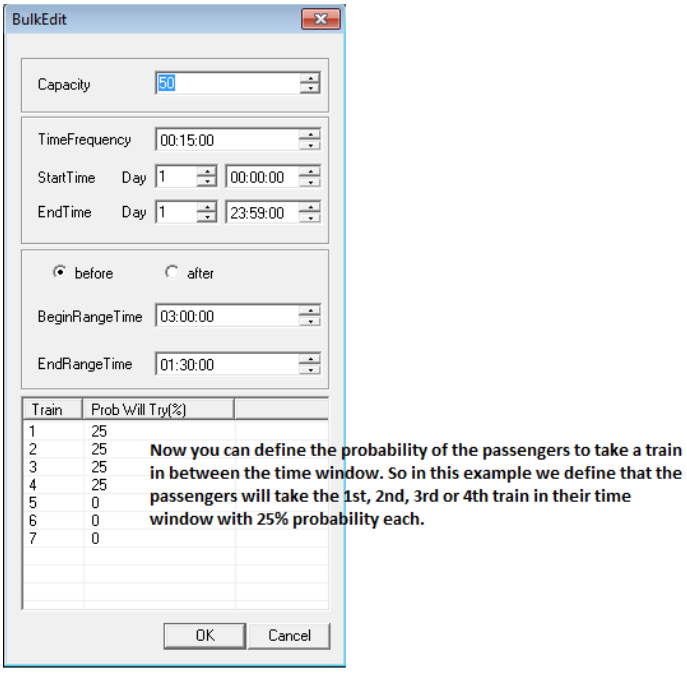
- **v1.28.119.0 (Released on December 9, 2013)**
    - **a.** Internal software maintenance.

- **v1.28.118.0 (Released on December 5, 2013)**
  - **a.** Internal software maintenance.

- **v1.28.117.0 (Released on December 4, 2013)**
  - **a.** Added pipes in Resources, so they are able to follow pipes from the Pool to the processors.



  - **b.** New Bulk profile definition:



  - **c.** Improved the Target Level of Service algorithm.

- **v1.28.116.0 (Released on November 20, 2013)**
  - **a.** Internal software maintenance.

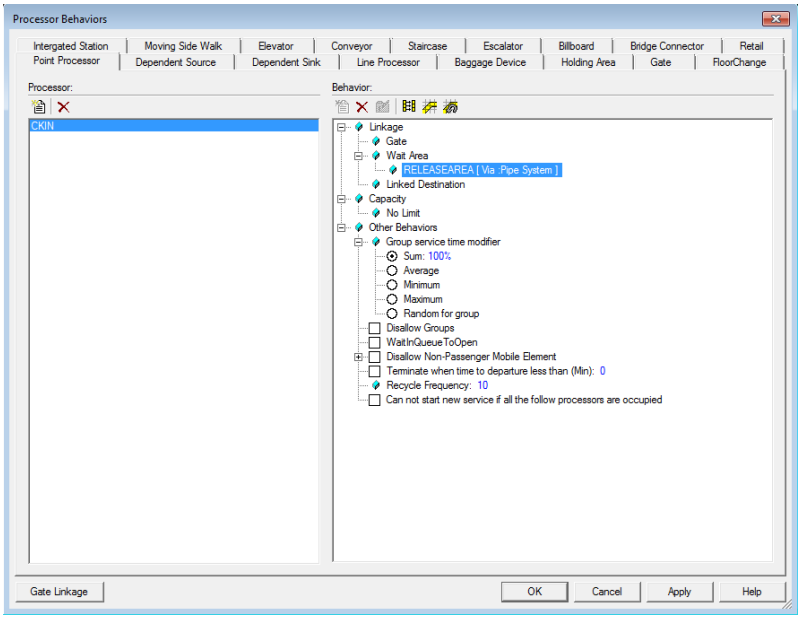
- **v1.28.115.0 (Released on October 30, 2013)**

This release needs to install first the **ArcPORT Resource Package 32.0**

a. Fix: Import wizard in roster is able to import the seconds.

b. Deice pads can be used as normal stands.

c. Added pipes in Behaviors, so we can define if Passengers that wait in waiting area until processor is open should follow the pipes, as we do with the flow.



- **v1.28.114.0 (Released on October 28, 2013)**
  - **a.** Internal software maintenance.

- **v1.28.113.0 (Released on October 25, 2013)**
  - **a.** Internal software maintenance.

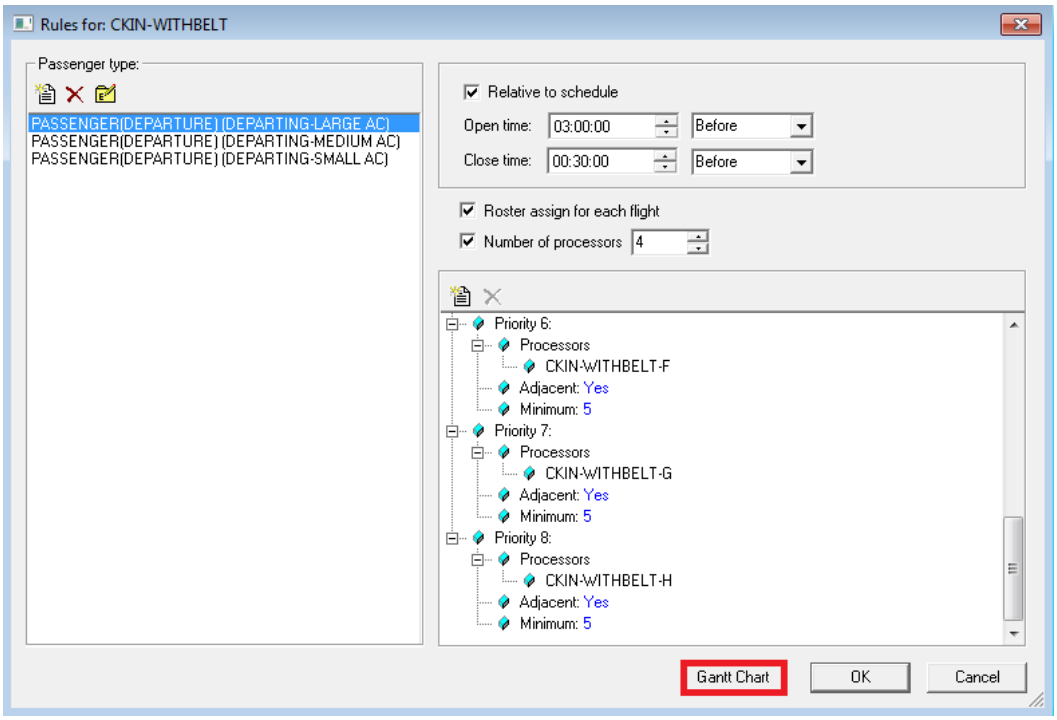
- **v1.28.112.0 (Released on October 23, 2013)**
  - **a.** Internal software maintenance.

- **v1.28.111.0 (Released on October 21, 2013)**
  - **a.** Internal software maintenance.
- **v1.28.110.0 (Released on October 18, 2013)**

  This release needs to install first **ArcPORTAdminUpdate_1.8**.
  - **a.** Fix: Double bridge connect correctly with arriving flights.
  - **b.** Internal software maintenance.

- **v1.28.109.0 (Released on October 16, 2013)**
  - **a.** Roster improvement. Now we can see the Gantt chart and reposition all the check in allocation as we do with Stand, Arrival Gate and Departure Gate Assignment. **Note that**

this feature is still in alpha version and is only used during training; please do not use it in production models. We will have the final version of this feature in next releases.



- **v1.28.108.0 (Released on October 2, 2013)**
  - **a.** Internal software maintenance.

- **v1.28.107.0 (Released on September 30, 2013)**
  - **a.** Added cellphone lot functionality in landside.

- **v1.28.106.0 (Released on September 29, 2013)**
  - **a.** Internal software maintenance.

- **v1.28.105.0 (Released on September 28, 2013)**
  - **a.** Fix: Passengers that wait in waiting area until processor is open follow the pipes to the processor from waiting area when released.

- **v1.28.104.0 (Released on September 27, 2013)**
  - **a.** Internal software maintenance.

- **v1.28.103.0 (Released on September 26, 2013)**
  - **a.** Fix: Vehicles stop at the crosswalks when passengers crossing.

- **v1.28.102.0 (Released on September 24, 2013)**

a. Internal software maintenance.

- **v1.28.101.0 (Released on September 18, 2013)**
  a. Implemented the Reorder function of taxi pools.
  b. Implemented the curbside strategy in landside.
  c. Implemented the Max. Stop time function.

- **v1.28.100.0 (Released on September 17, 2013)**
  a. Internal software maintenance.

- **v1.28.99.0 (Released on September 16, 2013)**
  This release needs to install first the **ArcPORT Resource Package 30.0**
  a. Fix: Elevators accept Disallow groups when defined in a process.
  b. Fix: Passenger smoothly move from the platform of the train station to the pipe.
  c. Aircrafts bank in the simulation when turning.
  d. Added Total Delay Report in landside.
  e. Improved Delay Report in landside.

- **v1.28.98.0 (Released on September 10, 2013)**
  a. Internal software maintenance.

- **v1.28.97.0 (Released on August 30, 2013)**
  a. Internal software maintenance.

- **v1.28.96.0 (Released on August 29, 2013)**
  a. Internal software maintenance.

- **v1.28.95.0 (Released on August 27, 2013)**
  a. Internal software maintenance.

- **v1.28.94.0 (Released on August 20, 2013)**
  a. Internal software maintenance.

- **v1.28.93.0 (Released on August 19, 2013)**
  a. Internal software maintenance.

- **v1.28.92.0 (Released on August 14, 2013)**
  a. Internal software maintenance.

- **v1.28.91.0 (Released on July 31, 2013)**

    a. Internal software maintenance.

- **v1.28.90.0 (Released on July 24, 2013)**
    a. Fix: Boarding call and Passenger Bus conflict.

- **v1.28.89.0 (Released on July 18, 2013)**
    a. Internal software maintenance.

- **v1.28.88.0 (Released on July 17, 2013)**
    a. Internal software maintenance.

- **v1.28.87.0 (Released on July 10, 2013)**
    a. Internal software maintenance.

- **v1.28.86.0 (Released on July 5, 2013)**
    a. Internal software maintenance.

- **v1.28.85.0 (Released on July 2, 2013)**
    a. Internal software maintenance.

- **v1.28.84.0 (Released on June 28, 2013)**
  This release needs to install first the **ArcPORT Resource Package 29.0** and the **ArcPORT Admin Update 1.7**.
    a. Change lane behavior improved.
    b. Fix: Bulk profile capacity is shared among all the flights in the schedule.

- **v1.28.83.0 (Released on June 26, 2013)**
    a. Internal software maintenance.

- **v1.28.82.0 (Released on June 24, 2013)**
    a. Improved animation performance.
    b. Added *Entry* and *Exit Position* columns in Landside Vehicle Activity Report.
    c. Fix: Check capacity queues when there is queue jumping.

- **v1.28.81.0 (Released on June 20, 2013)**
    a. Internal software maintenance.

- **v1.28.80.0 (Released on June 19, 2013)**
    a. Internal software maintenance.

- **v1.28.79.0 (Released on June 18, 2013)**

a. Internal software maintenance.

- **v1.28.78.0 (Released on June 6, 2013)**
  This release needs to install first the **ArcPORT Resource Package 28.0.**
  a. Fix: AC color display.
  b. Internal software maintenance.

- **v1.28.77.0 (Released on June 1, 2013)**
  a. Internal software maintenance.

- **v1.28.76.0 (Released on May 24, 2013)**
  This release needs to install first the **ArcPORT Resource Package 27.0.**
  a. The "*Preferences*" button under *Gate Assignment* → *Stand linkage* is called now "*Constraints*". The reason is because now, besides setting the gate assignment time and the overlap within flights, it will also restrict the gate to the specified flight. So only flights belonging to the specified flight type will be assigned to the gate.
  b. Vehicles in Landside are able to overpass stopped vehicles using other stretch lines.
  c. Added new textures in the surface structures in Airside.
  d. Internal software maintenance

- **v1.28.75.0 (Released on May 22, 2013)**
  a. Internal software maintenance.

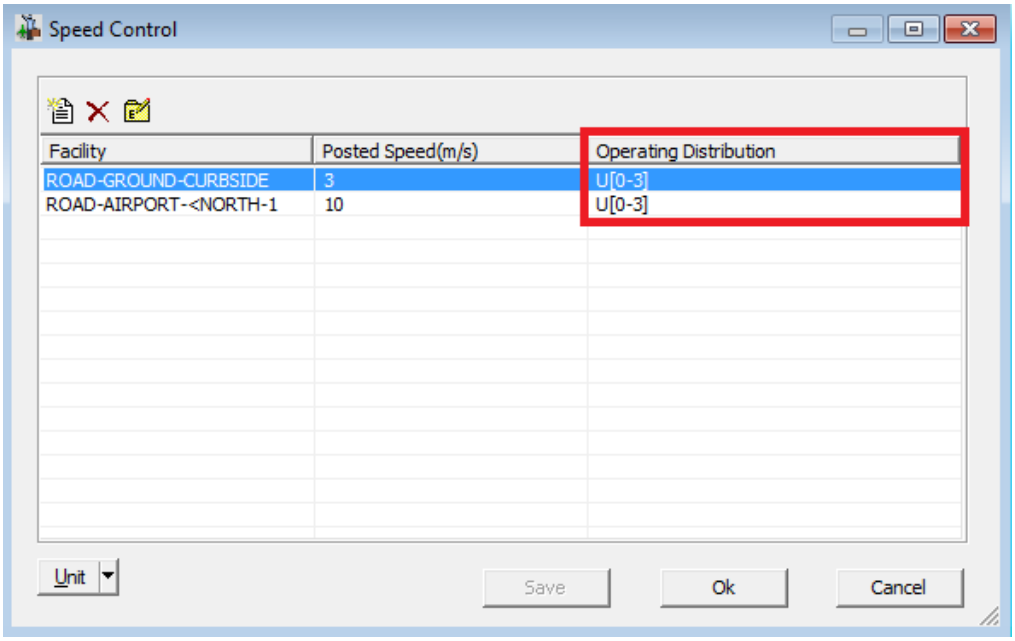
- **v1.28.74.0 (Released on May 20, 2013)**
  a. Internal software maintenance.

- **v1.28.73.0 (Released on May 17, 2013)**
  a. Internal software maintenance.

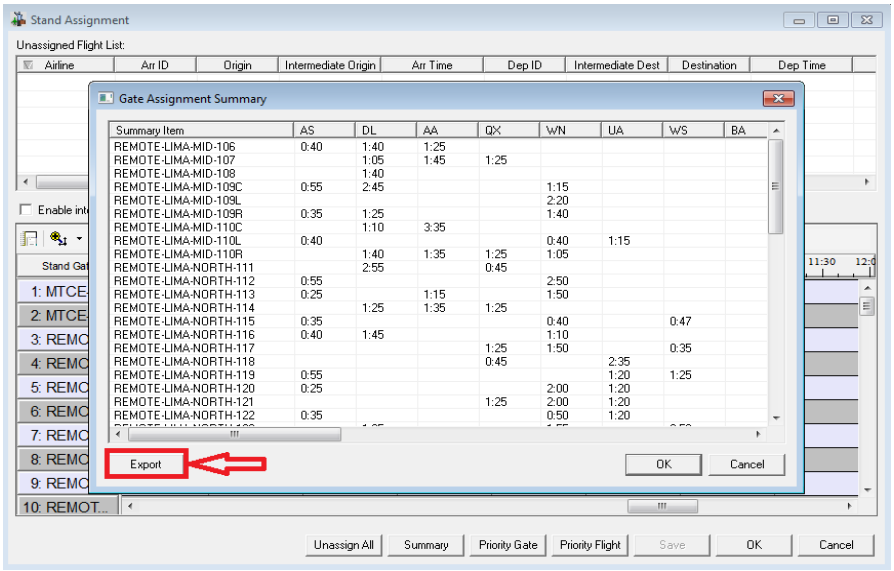
- **v1.28.72.0 (Released on May 16, 2013)**
  a. Internal software maintenance.

- **v1.28.71.0 (Released on May 15, 2013)**
  a. Internal software maintenance.

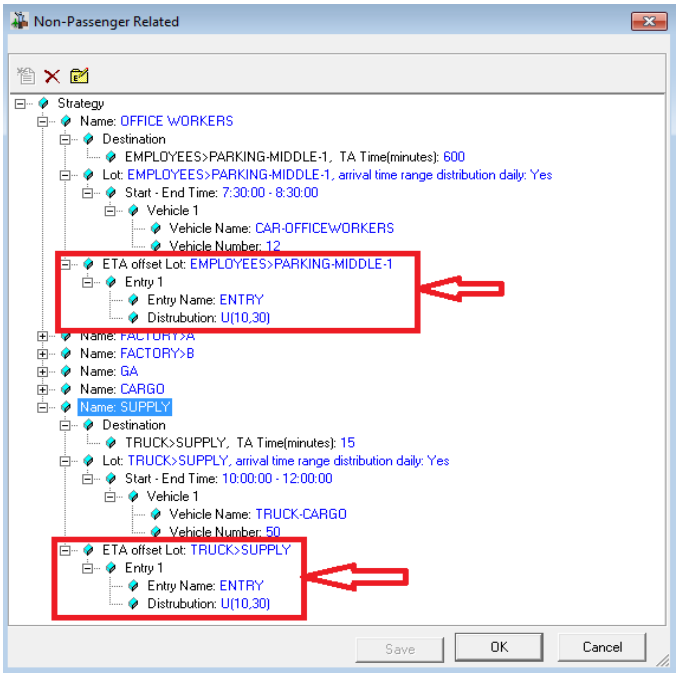
- **v1.28.70.0 (Released on May 8, 2013)**
  a. Memory usage when recording videos has been improved.
- **v1.28.69.0 (Released on May 3, 2013)**
  a. Fix: Video Recording problem - sometimes passengers and processors don't appear in the recorded video.
  b. Added the *Operating Distribution* functionality to the Speed Control GUI in the landside.



- **v1.28.68.0 (Released on April 28, 2013)**
  - **a.** Stand allocation summary report can be exported to CSV now.



  - **b.** Fix: Disallow groups jumping from the out constraint to the meeting point. Now passengers go in a constant movement to the meeting point.
  - **c.** Added ETA offset distribution in landside for non-passenger related vehicles.

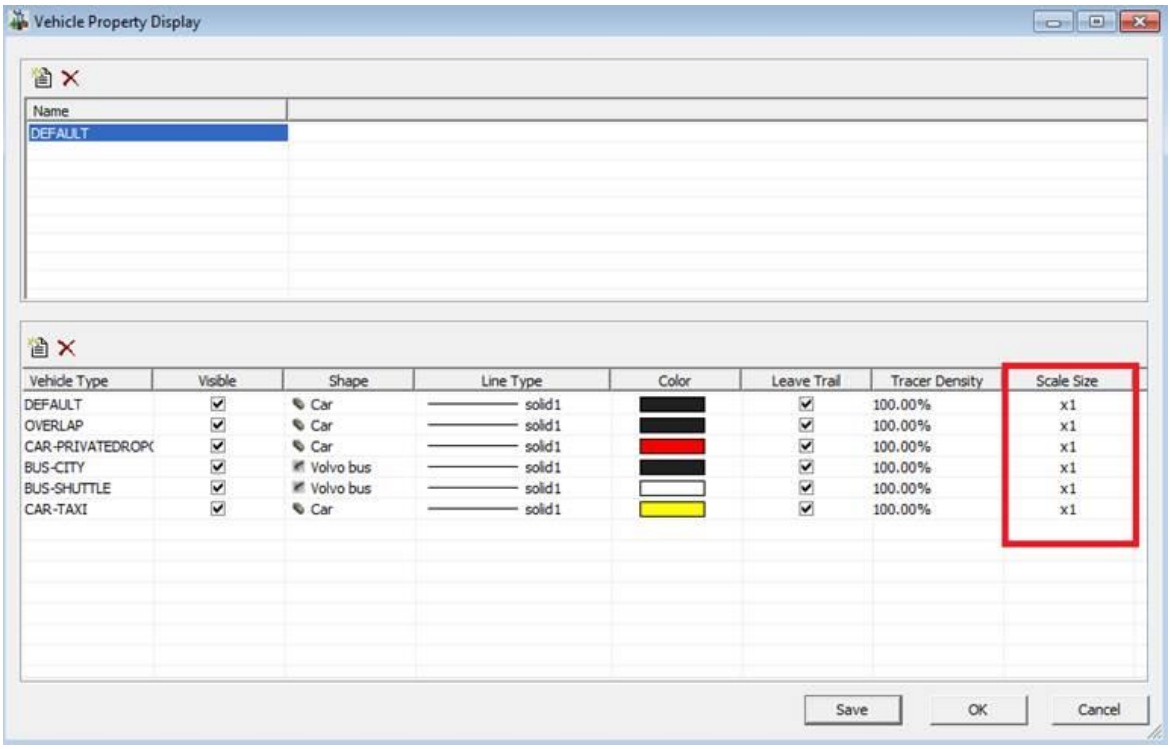


d. Internal software maintenance.

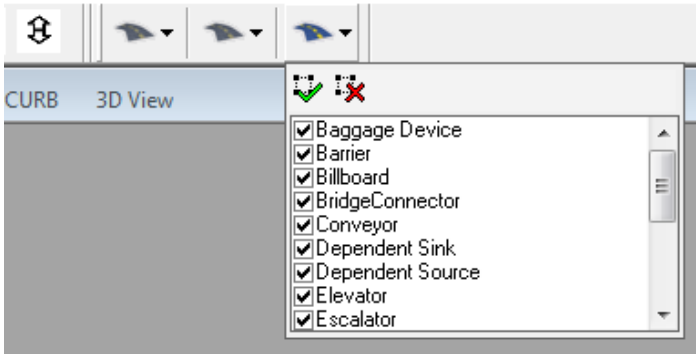
- **v1.28.67.0 (Released on April 23, 2013)**
  - **a.** Fix: Vehicles will stop in front of crosswalks if passengers are crossing.
  - **b.** Fix: 1:1 between landside curbside and terminal curbside in Facility Behavior GUI.
  - **c.** Internal software maintenance.

- **v1.28.66.0 (Released on April 22, 2013)**
  - **a.** Internal software maintenance.

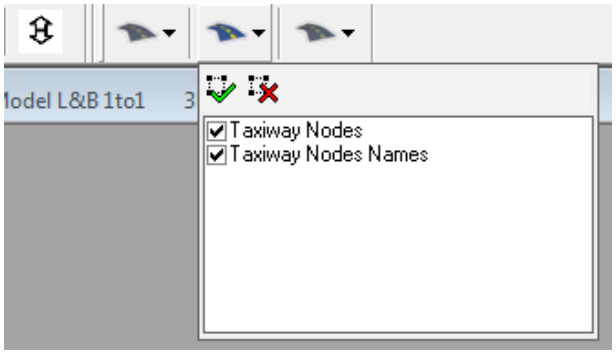
- **v1.28.65.0 (Released on April 17, 2013)**
  - **a.** **Vertical scale of landside vehicles** that will allow you to see vehicles more clearly from a faraway view. You can set this up on the vehicle display GUI, similarly as we do with the aircrafts in airside. You will need to click this button  to activate the feature.



b. **Hide/Show processors by type GUI** that will allow you to choose which type of processor want or do not want to see on terminal side.



c. **Hide/Show taxiways nodes and their names GUI** that will allow you to see where taxiways joints are.



d. **New vertical profile GUI** that will allow you to choose two points in a different vertical position (with several points in between) and make a constant slope between those two points, automatically aligning all the points in between to the slope.