

North American Simmod User Group

Falls Church, Virginia

Presented to: NASUG

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Federal Aviation
Administration



Model Release

- FAA engine version 2.8 released March 2007
 - Window version
 - Linux version
- Received 6 requests for the FAA's engine
- send bug reports and desired enhancements to:
 - john.zinna@faa.gov



Model Maintenance

- Corrected runway exit logic. Infinite loop occurred when a large number of records in the RUNWAY_EXITS_LINKS card were defined
- Fixed runway exit logic. Allowed exits were being ignored
 - **defined in RUNWAY_EXITS_LINKS**
- Corrected runway exit logic. Prohibited exits were being selected
 - **defined in RUNWAY_EXITS_PROHIBITED_LINKS**



Model Maintenance

- Corrected airspace logic. Aircraft holding at an node perpetually due to computer precision error
- Corrected stagger logic. Engine crash, an aircraft was being erroneously referenced after it left the system
- Corrected input logic. The global `allow_alnk_depq_inv_blk` was not being read correctly



Model Maintenance

- new output table lists the success for each iteration of a model run
 - number of aircraft still active at end, any gridlock
 - written to CRT and SIMU04
 - example output data:

```
Iteration 1:  1 aircraft active at end.  
Iteration 2: 42 aircraft active at end. Gridlock occurred at 9:42  
Iteration 3:  0 aircraft active at end.  
Iteration 4: 28 aircraft active at end. Gridlock occurred at 8:12  
Iteration 5:  0 aircraft active at end.
```
- general maintenance
 - using latest Simscript compiler (Windows & Linux)
 - enhanced warning & error messages
 - engine crashed when gridlock detected, fixed

Model Maintenance

- Created SETRUNWAY_TAXI event card
 - **allows taxiing on a specified runway**
 - **taxiing can be enabled or prohibited at a specified time**
- Created SETGATE_CAPACITY event card
 - models the closing and opening of gates
 - aircraft at the gate at time of closing will continue with its current operation



Model Maintenance

- Corrected taxi logic. Two aircraft were passing each other on ground links defined with no passing.
- Fixed DSDPath logic. Two aircraft were head-to-head on a DSDPath
 - **a holding aircraft was granted access to DSDPath, started spooling, when another aircraft entered**
- Corrected taxi planning logic. Arriving aircraft's ETA to each ground node were overestimated, causing gridlock on a DSDPath
 - **occurred when using runway exit distribution data**

Model Maintenance

- Correction to gate pushback logic. An aircraft was taxiing on a gate's blocked links when aircraft at gate started pushback.
 - **Aircraft at gate will now wait until passing aircraft clears blocked links.**



- **FAA email:**
 - john.zinna@faa.gov

