

# NASUG

FAA Technical Center

September 15, 2005  
Baltimore/Washington Intl Airport

# FAA status

- Current version : 2.5.4
- Available on FAA's ftp site
- Since the last NASUG meeting:
  - FAA engine has been requested by 5 users
  - No bug reports received

# Denver Airport Study

- Denver ground issues:
  - During IFR weather, every United Airline flight has a requirement to stop and take two minutes just prior to departing to check for ice on the aircraft's wings
  - The airport suggested constructing an apron near runway end to hold UA flights, this allows other aircraft to pass, relieving taxi congestion
  - Maximum capacity of the apron would be two aircraft, but only one if the aircraft is a Heavy

# Denver Airport Study

- Denver ground issues (con't):
  - Denver has six deicing areas. Each deicing area has a maximum capacity of 5 or 6 aircraft, but each deicing area can only accommodate 2 or 3 heavy aircraft. In addition, the wings of a Heavy aircraft may extend into another aircraft's deicing location, thus restricting the capacity of a deicing area.
- How to model?

# Denver Airport Study

- New input record: “Holding\_Apron”
  - Holds aircraft at a ground node for a specified amount of time
  - To correctly model the Heavy aircraft issues, the Holding Apron logic considers :
    - maximum number of Heavy aircraft permitted
    - number of aircraft spaces a Heavy will occupy (such as 1.5, 2.0). This has the effect of limiting the apron capacity

# Denver Airport Study

Example – If an apron is defined as :

max aircraft capacity = 5

number Heavy a/c allowed = 2

Heavy space size = 1.5

Number of Heavy a/c	Number of Non-Heavy a/c	Number of spaces occupied
2	0	3
2	1	4
2	2	5
1	3	5

# Denver Airport Study

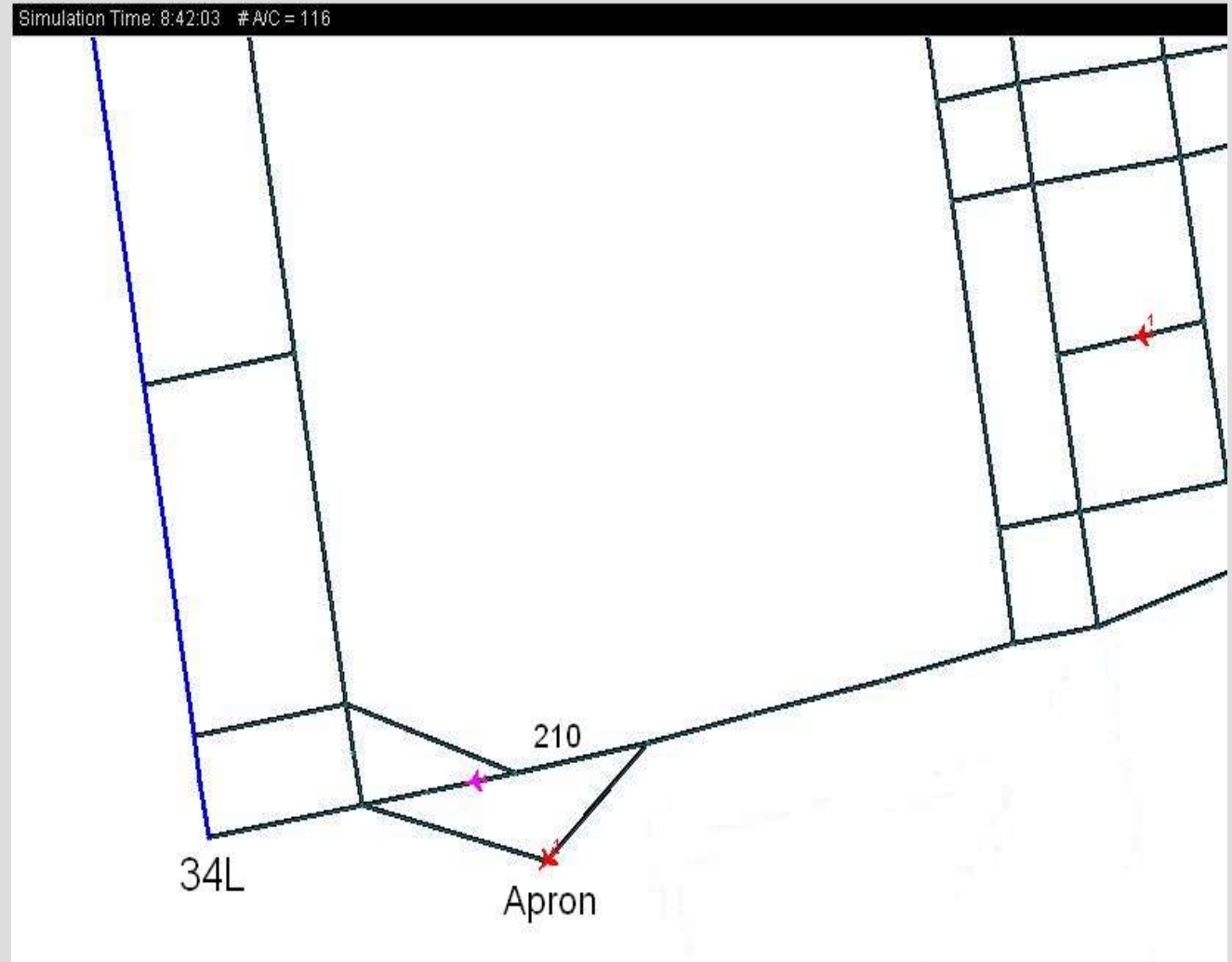
- Holding\_Apron is being used for :
  - To hold UA flights for 2 minutes
  - Deicing areas
- To get the aircraft to travel to the apron, use:
  - Link restrictions (2 new ones created)
  - Taxipaths
- Output data:
  - Apron delay summary table (SIMU10)
  - Echo of input data (SIMU02)

# Denver Airport Study

- Two new ground link restrictions:
  - Aircraft may be prohibited to taxi on a link based on it's airline type
  - Aircraft may also be prohibited based on an airline and model combination

# Denver Airport Study

- Airline restriction on link 210 makes all UA flights taxi to the Holding Apron



# Model Improvements

- Two stagger logic enhancements:
  - Arrival spread delay will be taken into consideration by the stagger logic when computing an aircraft's separation with another staggering aircraft
  - If an arrival spread delay was imposed a few seconds after an aircraft's stagger logic was computed, the spread delay will be applied to the trailing aircraft at the stagger node (work in progress)

# Model Improvements

- A concourse name may now be assigned to individual flights
  - Concourse name is entered in the gate field of the Event file
  - Error checking is performed to verify that a Concourse name is not identical to a Gate name

# Future Improvements

- For the Holding\_Apron record, change the hold time input to a probability distribution
- Have option to specify aircraft groups, instead of a/c models for input records:
  - RUNWAY\_EXITS\_LINKS
  - RUNWAY\_EXITS\_PROHIBITED\_LINKS
- Any required improvements/bug fixes that come up with in-house studies:
  - Denver (on-going)
  - Indianapolis (developing input files)
  - New York airspace (study is on hold)

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