



TRANS SOLUTIONS

Merging Facility and Process



TRANS SOLUT¹⁰NS
years
1998-2008

SIMMOD Defaults: Discussion

NASUG

September 25, 2008



TRANSOLUT¹⁰NS
years
1998-2008

Agenda

- Review of SIMMOD Defaults
- Proposed Changes in SIMMOD Default Values
 - Challenges with current default values
 - Proposed default values
- Questions/Discussion

SIMMOD Defaults

- Used as “placeholders” when SIMMOD items are created:
 - Nodes, links, routes, procedures, etc.
 - *Simmod PLUS!* has default_data.txt that user can edit
- If users do not modify to make the values specific to an application, the defaults may result in unrealistic analyses
- Goal: Assign values in the various SIMMOD tools that provide the most reasonable defaults



SIMMOD Defaults

- DYNAMIC_TAXIPATH,AC_CAPACITY,1
- RUNWAY_CROSS,PREEMPT_TIME,0.0
- STAGGER_SEPARATION,DIAGONAL_SEP_TIME,0.0
- AC_MODEL,PUSH_BACK_ONLY_FLAG,PUSH_BACK_AND_POWER_BACK
- AIRLINE,ALN_TYPE,COMMERCIAL
- AIR_AC_GROUP_AIR_LINK_TYPE,MAX_SPEED,380.
- AIR_AC_GROUP_AIR_LINK_TYPE,MIN_SPEED,340
- GATE,GFLAG,MUST_WAIT
- GATE,GTE_TYPE,NOT_MODELED
- AIR_AC_GROUP,MIN_CEILING,100
- AIR_AC_GROUP,MIN_VIS_RANGE,1200
- GND_LINK,A_D_FLAG,AD
- AIR_AC_GROUP_AIR_LINK_TYPE,NOM_SPEED_DESIGNATOR,TRUE
- AIR_AC_GROUP_AIR_LINK_TYPE,NOM_SPEED,360.
- AIR_AC_GROUP_STACK_TYPE,EXIT_TIME_INCREMENTS,0
- AIR_AC_GROUP_STACK_TYPE,HOLDING_SPEED,250
- AIR_AC_GROUP_STACK_TYPE,MIN_HOLDING_TIME,0
- AIR_AC_GROUP_SEPARATION,ASG_FIN_SEP,0.
- AIR_AC_GROUP_SEPARATION,ASG_MIN_SEP,3.0



SIMMOD Defaults

- GND_AC_GROUP,INITIAL_SEP,30
- GND_AC_GROUP,RESOLVE_CONFLICT_SEP,15
- PATTERN,AC_CAPACITY,1
- GATE,AC_CAPACITY,1
- DEICING_AREA,AC_CAPACITY,0
- DEICING_AREA,DEICING_EFF_TIME,30
- DEICING_AREA,MAX_AC_IN_QUEUE,1
- GATE,DEFAULT_CONNECT_TIME,0
- GND_LINK,DIRECTION_USED,EITHER
- GATE_PAD,PRIORITY,1
- DEICING_AREA_SET_DEICING_AREA,PRIORITY,1
- GATE_SET_GATE,PRIORITY,1
- TOUCH_AND_GO,PRIORITY,1
- TOUCH_AND_GO,NUM_TIMES,1
- CONGESTION,FULL_THRESHOLD,2
- CONGESTION,SATURATED_THRESHOLD,5
- HOLDCYCLE,MAX_AC,1
- DEPARTURE_Q,MAX_Q_SIZE_DIVERSIONS,10
- DEPARTURE_Q,MAX_Q_SIZE_NO_DIVERSIONS,20
- DEPARTURE_Q,MAX_Q_THRESHOLD,0
- DEPARTURE_Q,PASS_FLAG,0
- DEPARTURE_Q,THRESHOLD,0
- DEPARTURE_Q,WAIT,600



SIMMOD Defaults

- PAD,MAX_AC_IN_QUEUE,1
- PAD,MAX_AC_ON_PAD,1
- EXIT,PRIMARY_PERCENT,0
- EXIT,SECONDARY_PERCENT,0
- RUNWAY,THRESHOLD_DISPLACEMENT,0
- AIRPORT,ELEVATION,0
- AIR_LINK_MATE,DIAGONAL_SEP,0
- AIR_LINK_MATE,DISTANCE_BETWEEN_RUNWAYS,0
- AIR_LINK_MATE,TIME_SEP,0
- SECTOR,MAX_AC,0
- AIRSPACE_NODE,ALTITUDE,0
- AIRSPACE_NODE,MAX_HELD_AC,0
- FLOW_NODE,DIST_INCR,0
- FLOW_NODE,MAX_INTRAIL_SEP_DIST,0
- FLOW_NODE,MIN_INTRAIL_SEP_DIST,0
- FLOW_NODE,SPEED,0
- FLOW_POST_NODE,SPEED,0
- METER_POST_NODE,MAX_QUEUE_SIZE,20
- METER_POST_NODE,MIN_QUEUE_SIZE,10
- METER_POST_NODE,MIN_SEP,0.1
- ROUTE,TRAVEL_TIME,0.0



SIMMOD Defaults

- BANK,AVERAGE_LATE_TRANSFER_TIME,0.2
- FLIGHT_BANK,MAX_HOLD_TIME,0.25
- FLIGHTS,NUMBER,001
- FLIGHTS,TIME,0.00
- MULTI_ARRIVAL,NUM_FLIGHTS,0
- MULTI_DEPARTURE,NUM_FLIGHTS,0
- MULTI_ARRIVAL,TIME,0.00
- MULTI_DEPARTURE,TIME,0.00
- MULTI_ARRIVAL,TIME_INTERVAL,0.0
- MULTI_DEPARTURE,TIME_INTERVAL,0.0
- TRACE,TIME,0.0000000
- PERIODIC_REPORT,TIME,0.0000000
- END_SIM,TIME,24.0000000
- SETINJ,TIME,0.0000000
- ENDSEED,TIME,0.0000000
- PLAN_AFFECTED,SEP,0.0



SIMMOD Defaults

- AIR_AC_GROUP_AIR_LINK_TYPE,MAX_SPEED_DESIGNATOR,TRUE
- AIR_AC_GROUP_AIR_LINK_TYPE,MIN_SPEED_DESIGNATOR,TRUE
- AIRSPACE_NODE,ARRIVAL_STRAT_FLAG,AIRCRAFT_WITH_COMMON_LINK
- AIRSPACE_NODE,CONTROL_STRAT,SPEED_FIT
- AIRSPACE_NODE,HOLDING_STRAT,HOLD_IF_HOLDING_AT_NEXT_NODE
- FLOW_NODE,FFLAG,NEAREST_INCREMENT
- PROCEDURE,PRC_TYPE,ARRIVAL
- PROCEDURE,PREV_DEP_AB_ROD_TF,T
- PROCEDURE,RWC_UNDER_AB_TF,F
- PROCEDURE,TOUCHDOWN_DIST,0
- ROUTE,ECHO_PRINT_FLAG,DO_NOT_PRINT_ECHO_REPORT
- FLIGHTS,OFFSET_FLAG_TF_USED,F
- FLIGHTS,DEICING_FLAG_TF_USED,F
- CONTINUING_DEPARTURE,DEICING_FLAG_TF_USED,F
- GATE,GTE_HOLD_TYPE,NOT_MODELED
- TRACE,ON_OFF_FLAG,ON
- ENDSEED,ON_OFF_FLAG,ON
- PERIODIC_REPORT,ON_OFF_FLAG,ON
- PERIODIC_REPORT,ITERATION_FLAG,ALL
- ENDSEED,ITERATION_FLAG,ALL
- TRACE,ITERATION_FLAG,ALL



SIMMOD Defaults

- PROBABILITY,UNITS,QUANTITY
- PROBABILITY_DISTRIBUTION,PROBABILITY,0.0
- PROBABILITY_DISTRIBUTION,PVALUE,0.0
- PROC_AIRSPACE_AC_GROUP,TIME_SEP,45
- PROC_AIRSPACE_AC_GROUP,DISTANCE_SEP,2
- AIRSPACE_NODE,INTRAIL_SEP_DIST,5.000000
- AIR_LINK,OVERTAKE_FLAG,PROHIBIT_PASSING
- AIR_LINK,WAKE_TURB_FLAG,NO_SEQUENCING_TEST
- AIR_LINK,MAX_AC_ON_LINK,5
- AIR_LINK,MAX_DELAY_ABSORBED,1
- AIR_LINK,ALT_ID_USED,9
- INTERFACE_NODE,NODE_GAP,0
- INTERFACE_NODE,SPRD_LST,0
- ROUTE_SEPARATION,SEP,0.000000
- GND_LINK,TAXI_SPEED,15
- GND_LINK,MAX_AC_ON_LINK,1
- GND_LINK,PASSING_FLAG,PASSING_IN_BOTH_DIRECTIONS
- GND_LINK,HI_SPEED_EXIT_TF,F
- INTERFACE_NODE,SPRD_LST_TYPE,PCT
- AIRSPACE_NODE,STT_ID_USED,1



Proposed Default Value Changes

- Route separation
 - One value in ROUTES header record that applies to all routes, unless specifically assigned to each route
 - SIMMOD chooses max of route, aircraft (wake), and node separation
 - Value was 5.0 nmi
 - Newest *Simmod PLUS!* value = 0.0 nmi

Proposed Default Value Changes

- Speeds on link types
 - Max, nom, min speed for each aircraft group on each link type
 - Speed and type (Indicated, True, Mach)
 - Max/nom/min default values = 380/360/340
 - Default type = True
 - Should these be slower speeds?
- Link type
 - Default is link type 9
 - Should this be link type 1?



Proposed Default Value Changes

- Airspace nodes: Arrival Strat Flag
 - Default = Separate aircraft pairs with a common link
 - Propose that default separate all aircraft through node
- Airspace nodes: Control Strat
 - Default = Speed Fit
 - Propose that default be Multi Fit



Proposed Default Value Changes

- Airspace nodes: Holding Strat
 - Default = Hold if Holding at Next Node (most restrictive)
 - Propose default be:
 - Hold if the number of aircraft approaching the next node exceeds the holding stack capacity at the next node
- Airspace nodes: Intrail Sep
 - Default = 5 nmi
 - Propose default be 3 nmi.



Some Default Values

- Procedure
 - Uses same defaults for all procedure separations, regardless of runway and regardless of arrival/departure
 - Time separation = 45 seconds
 - Distance separation = 2.0 nmi
 - Possible? to change departure blocking arrival procedure to:
 - Time 0 seconds
 - Distance 0.0 nmi



Questions/Discussion

Thank you.



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