

AviPLAN Fundamentals | Aircraft Path Simulation and Parking

Software essentials and theory covering AviPLAN's Path, Group Path, Park, Fillet, Session Manager, Presentation and tools

Who should attend?

Recommended for users working with, or interested in, any AviPLAN product

Duration

12 hours (4 hours x 3 days)

Prerequisites

- A basic understanding of AutoCAD® or BricsCAD® or MicroStation®
- A basic knowledge of national/international airport planning regulations
- A sound understanding of airport planning concepts

Why choose this training format?

- Easy to join online instructor-led sessions from any location, minimizing travel and scheduling conflicts
- Scheduled sessions offer a clear timeline, helping participants stay on track
- Access to training materials, enabling reinforcement of learning
- Reduced travel and accommodation make this format a budget-friendly solution

Course Content

Introduction

- General introduction
- Installation guidelines and Start options
- Overview of menus, ribbons and commands
- Finding your way in (digital) documentation
- Explanation of data origins and simulation methodology
- 2D/3D planning vs visualization

Global and drawing related settings

- Working units and regulations
- Assigning the default session layer and dimension style
- Saving, applying and sharing settings templates
- Creating and sharing user-defined airplane labels
- Understanding the regulation source material
- Customizing airplane safety offset values
- Conflict analysis options

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Park command

- Managing and selecting library content
- View selection; 2D top view / 3D view, side view, front view
- Insertion points, alignments and offsets
- Insertion methods; FreeDrive, Target and Parallel
- Interactively creating and applying airplane configurations
- Handling sessions with CAD functionality vs AviPLAN functionality
- Saving, moving, copying, reopening, deleting and importing sessions

Case study demonstration

- Design of a simple apron extension and stand layout with the Park command

Drawing Manager command

- Managing and assigning CAD layers with AviPLAN
- Controlling session element display and properties
- Creating and applying property templates
- Editing and applying Airplane Configurations
- Converting sessions to 3D
- How to locate and manage sessions in a drawing
- How to use Saved Session Views to easily enable repeated display of simulation scenarios
- Organizing and structuring your design work

Configure Airplane command

- Creating, custom service arrangements
- Configuring and adding Service points, Jacking points or Tie-down points
- Configuring user-defined airplane Labels

Data Manager command

- Understanding how AviPLAN-created data and elements are stored in the CAD environment
- Managing, saving and sharing sessions, custom objects, groups and templates

Path command

- Understanding program limitations and assumptions
- Simulation speed settings and principals
- Understanding turning dynamics, effective steering angles, steering limits, and options
- Path building theory, and best methods to assist more realistic movement results
- Path 'sections' vs 'segments' explained
- Choosing the best method to start and construct swept paths for aircraft and vehicles
- Learning how to alternate between construction methods to best follow CAD guidelines
- How to increase accuracy by starting/ending simulations via SmartTarget
- How to edit constructed paths
- Splitting constructed paths into sections for more detailed analysis and varied element display
- Options to place airplane along a path to best interpret and display problem areas
- Creating vehicle/airplane combinations
- Pushback functionality and best practices
- Creating and understanding reports

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Case study demonstrations

- Designing a lead-in and lead-out concept for the previously designed layout with the Path command
- Capacity study incl. design best practices for apron layout with taxi-in, taxi-out stands
- Jet blast impact analysis for a taxi-in taxi-out apron area
- Verify a pre-planned 3 for 2 stand overnight-stop (RON) scenario
- Analyze and redesign a nose-in stand including lead-in marking design
- Detailed pushback analysis and redesign of an existing stand including pushback markings and pull forward procedures
- Review a planned helicopter parking bay for hover entry and exit
- Review a planned eVTOL apron area for hover entry and exit incl. repositioning wheeled variants with tow tractors
- Analyze procedures for an existing runway turn pad and marking design
- Pushing an airplane into a hangar and analyzing the wingtip path while negotiating building constraints and other airplanes (2D and 3D)

Vehicle Editor command

- Creating vehicles and combinations
- Dimensions, coupling characteristics, steering properties etc.
- Selecting the vehicle in the Select Object dialog

Case study demonstrations

- Simulate a baggage train from a stand to a baggage handling system and maneuver through it
- Simulate an articulated vehicle over roadways, roundabouts and reversing into cargo bays

Group Manager command

- Creating groups of airplanes for Stand, Fillet. Group Path and Group Lead-in commands
- Saving, selecting and sharing your custom airplane groups

Group Path command

- Settings, selections and CAD drawing requirements
- Selecting/adding airplanes and/or airplane groups
- Manual vs. automatic construction point selection
- Building a Group Path from scratch
- How to use existing Path sessions to rapidly construct and modify Group Paths
- Connecting Group Path simulations to analyze alternative procedures along a path
- Using conflict detection to analyze to main gear to pavement edges compliance
- Using conflict detection to analyze wingtip clearance to apron limit markings
- Interpreting results and creating reports

Case study demonstrations

- Study a route with a large group of airplanes from runway to apron-taxiway for checking main gear clearance compliance and reporting
- Create a second path that combines with the first, as an extended study, to analyze wingtip clearances between apron-taxiways and apron limits lines and service roads

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Group Lead-in command

- Verifying stand designs by analyzing lead-in paths for “as planned” groups of airplanes
- Landing gear conflict analysis with possible in ground obstacles
- Wingtip conflict analysis with above ground obstacles
- Interpreting results and creating reports

Fillet command

- Review regulation design criteria for ICAO/EASA/FAA
- How to choose the correct airplane design groups and effective wheelbase parameters
- How to create and apply large groups of airplanes to ensure design longevity
- Rapidly construct regulation compliant taxiway edges with intersection fillets and shoulders

Case study demonstration

- Create all edges for a complex group of taxiway intersections based on centerlines only

2D Presentation command

- Handling single and multiple simulations
- Changing plan view camera positions and following objects
- Previewing animations
- Recording and saving to WMV or MP4 video formats

Case study demonstration

- By combining several of the simulations created during other case studies, we learn how to create a video that demonstrates a basic turnaround procedure

3D Presentation command (Time permitting)

- Handling single and multiple simulations
- Changing camera positions in 3D view and following 3D objects
- Previewing animations
- Recording and saving to WMV or MP4 video formats

Homework

- The instructor demonstrates various case study scenarios during the course. Participants receive limited-time access to the case study drawing files and data sets used in the course. This enables participants to revisit the material and replicate the demonstrated case studies at their own pace to support continued learning

Contact Us

To register or request additional information, please contact your Account Manager or email infoaviation@transoftsolutions.com