

# Occupant Packaging Toolkit for Jack

Design and test vehicle interiors with digital humans

## fact sheet

Siemens PLM Software

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### ► Summary

With Jack and the Occupant Packaging Toolkit (OPT), designers can analyze concept vehicle interiors for human factors issues without building costly physical prototypes.

### Benefits

- Factor in human needs from design start
- Minimize need for physical prototypes
- Improve performance, comfort and product safety
- Accelerate time-to-market
- Decrease design costs

### Features

- An add-on to Jack, the Occupant Packaging Toolkit provides tools for:
  - SAE packaging J-Standards
  - Posture prediction
  - Comfort assessment
  - Vision analysis

### What is the Occupant Packaging Toolkit?

Designing better interior spaces for cars, trucks, airplanes and construction equipment can be a challenge. The Occupant Packaging Toolkit (OPT) for Jack addresses this challenge by providing analytical tools that help you design vehicle interiors for optimal occupant performance and comfort while reducing the need to build costly physical prototypes. OPT is an add-on module to the popular Jack human simulation and ergonomics analysis software program.

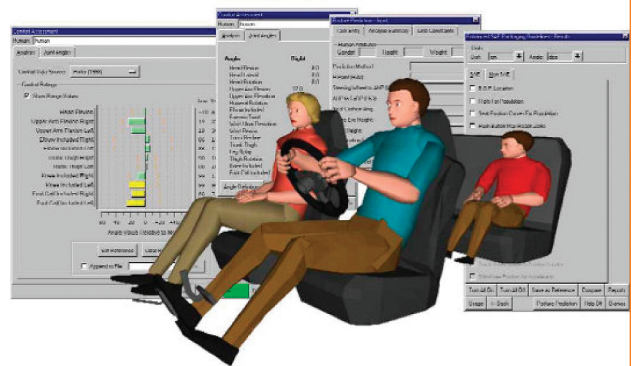
The unique set of tools in the OPT module allow you to perform a wide variety of analyses on your vehicle design. You can benchmark against other vehicles or design candidates using the extensive SAE J-Standards tools. You can predict how a person might posture themselves in the vehicle, and evaluate how comfortable they would be. You can also analyze what they can reach and see.

The powerful vision analysis capability allows you to quickly generate 3D design zones representing what can be seen, or what cannot, and obtain feedback on how much of a target is visible.

With the Jack Occupant Packaging Toolkit, you can develop more ergonomic, safer and more comfortable vehicle interiors.

### Overview

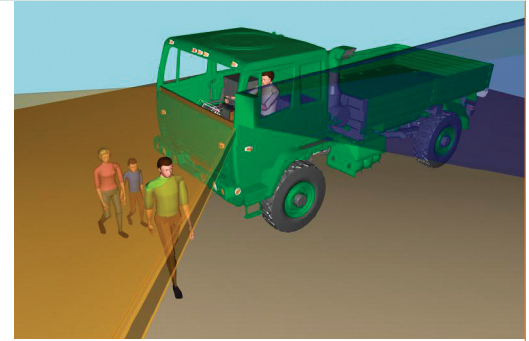
The Jack human simulation solution enables you to insert human models into your digital environments. With the Occupant Packaging Toolkit add-on, you can evaluate your digital vehicle concept models for human factors issues. Analyzing vehicle interior concepts while they are still in the preliminary design stage allows designers to bring human factors into the design process sooner, before a bad idea gets solidified.



### Hardware platforms supported

Windows 2000 and XP  
Hewlett-Packard HP-UX  
Silicon Graphics

With Jack and the OPT, you can interactively evaluate a concept vehicle design for human fit and performance. Since Jack is infinitely scalable, you can create a Jack or Jill figure of any desired size, and the OPT functionality will automatically position the figure into the vehicle based on validated research models. You can further investigate your design by using the comfort analysis and vision analysis functionality to improve occupant performance. Using the SAE J-Standard tools, you can benchmark a vehicle design using industry standard tools.



Using the Occupant Packaging Toolkit for Jack, you will be able to design safer and more optimal vehicle layouts, faster and for less cost.

### SAE packaging guidelines

The SAE packaging guidelines tool implements 28 of the SAE recommended practices for various driver and vehicle design attributes. With this tool you can:

- Create geometry in Jack to identify zones where physical features such as eyes, head clearance and fingers would be located for 95 to 99 percent of the population
- Create geometry to identify locations for vehicle attributes such as the seat, steering wheel, armrest, gear shift, wiper and defroster zones
- Evaluate alternate designs just by modifying the critical reference points

### Posture prediction

The posture prediction tool helps you place Jack virtual humans in seated postures that represent how people of a particular size actually sit in the seat of an automobile. Based on empirical studies of hundreds of occupants seated in various vehicle configurations, the tool:

- Predicts the location of Jack within a vehicle package, taking into account the size of the virtual human and the packaging layout
- Automatically positions drivers and passengers in both front and rear seats



### Comfort assessment

The comfort assessment tool helps you determine whether you've positioned a Jack human model in a comfortable posture. With five comfort models available to assess seated comfort, the comfort assessment tool:

- Predicts whether a given Jack model is in a comfortable seated posture
- Dynamically displays the comfort ranges as you position the Jack model
- Allows you to customize or create your own comfort ranges for individual joints

### Vision Analysis

The Vision Analysis tool helps you analyze the line of site issues in the vehicle. The tool allows you to create geometry representative of the direct line of sight obscuration zones, the reflection zones and the target visibility within an environment. In addition, the Vision Analysis functionality allows you to:

- Generate zones that represent boundaries of what can be seen through mirrors, occluded areas behind geometry or portions of targets that can be seen
- Batch process a family of figures to automatically generate population restriction zones



### Contact

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