BENEFITS

• Save time by identifying design problems early in development
• Cut costs by reducing your reliance on hardware prototypes
• Improve quality by quickly optimizing full-system performance
• Increase innovation by exploring many design options quickly and efficiently

A COMPLETE VIRTUAL PROTOTYPING ENVIRONMENT PROVIDING FULLY INTEGRATED MODELING, SOLUTION AND VISUALIZATION

MSC.ADAMS is the world’s most widely used mechanical system simulation software. It lets you build and test virtual prototypes, realistically simulating on your computer, both visually and mathematically, the full-motion behavior of your complex mechanical system designs.

With MSC.ADAMS, you can quickly and easily create a complete, parameterized model of your mechanical system, building from scratch or importing parts geometry from your preferred CAD system. You then apply forces and motions and run this model through a battery of physically realistic 3D motion tests.

The result is a complete simulation of your complex mechanical system in operation — done completely on the computer, before cutting a single piece of metal or molding a single piece of plastic.

What used to take weeks or months to physically model and test can now be done in just hours with MSC.ADAMS. From the earliest stages of development, you can see and improve how your designs will function. You can:

• Locate and correct lock-up positions
• Identify collisions
• Define motion envelopes
• Refine motion paths
• Size motors and actuators
• Compute peak loads
• Optimize work-cycle times
• Ensure precise positions

You can quickly explore hundreds or even thousands of design variations, plotting your results in graphs or comparing them in high-speed animations.

Best of all, the results you get with MSC.ADAMS are highly precise and accurate. You can rely on them to guide you in refining and optimizing your mechanical system designs.

PRODUCT
MSC.ADAMS
Core Product

MSC ADAMS is the world’s most widely used mechanical system simulation software. It lets you build and test virtual prototypes, realistically simulating on your computer, both visually and mathematically, the full-motion behavior of your complex mechanical system designs.

With MSC.ADAMS, you can quickly and easily create a complete, parameterized model of your mechanical system, building from scratch or importing parts geometry from your preferred CAD system. You then apply forces and motions and run this model through a battery of physically realistic 3D motion tests.

The result is a complete simulation of your complex mechanical system in operation — done completely on the computer, before cutting a single piece of metal or molding a single piece of plastic.

What used to take weeks or months to physically model and test can now be done in just hours with MSC.ADAMS. From the earliest stages of development, you can see and improve how your designs will function. You can:

• Locate and correct lock-up positions
• Identify collisions
• Define motion envelopes
• Refine motion paths
• Size motors and actuators
• Compute peak loads
• Optimize work-cycle times
• Ensure precise positions

You can quickly explore hundreds or even thousands of design variations, plotting your results in graphs or comparing them in high-speed animations.

Best of all, the results you get with MSC.ADAMS are highly precise and accurate. You can rely on them to guide you in refining and optimizing your mechanical system designs.

PRODUCT
MSC.ADAMS
Core Product

MSC ADAMS is the world’s most widely used mechanical system simulation software. It lets you build and test virtual prototypes, realistically simulating on your computer, both visually and mathematically, the full-motion behavior of your complex mechanical system designs.

With MSC.ADAMS, you can quickly and easily create a complete, parameterized model of your mechanical system, building from scratch or importing parts geometry from your preferred CAD system. You then apply forces and motions and run this model through a battery of physically realistic 3D motion tests.

The result is a complete simulation of your complex mechanical system in operation — done completely on the computer, before cutting a single piece of metal or molding a single piece of plastic.

What used to take weeks or months to physically model and test can now be done in just hours with MSC.ADAMS. From the earliest stages of development, you can see and improve how your designs will function. You can:

• Locate and correct lock-up positions
• Identify collisions
• Define motion envelopes
• Refine motion paths
• Size motors and actuators
• Compute peak loads
• Optimize work-cycle times
• Ensure precise positions

You can quickly explore hundreds or even thousands of design variations, plotting your results in graphs or comparing them in high-speed animations.

Best of all, the results you get with MSC.ADAMS are highly precise and accurate. You can rely on them to guide you in refining and optimizing your mechanical system designs.

PRODUCT
MSC.ADAMS
Core Product

MSC ADAMS is the world’s most widely used mechanical system simulation software. It lets you build and test virtual prototypes, realistically simulating on your computer, both visually and mathematically, the full-motion behavior of your complex mechanical system designs.

With MSC.ADAMS, you can quickly and easily create a complete, parameterized model of your mechanical system, building from scratch or importing parts geometry from your preferred CAD system. You then apply forces and motions and run this model through a battery of physically realistic 3D motion tests.

The result is a complete simulation of your complex mechanical system in operation — done completely on the computer, before cutting a single piece of metal or molding a single piece of plastic.

What used to take weeks or months to physically model and test can now be done in just hours with MSC.ADAMS. From the earliest stages of development, you can see and improve how your designs will function. You can:

• Locate and correct lock-up positions
• Identify collisions
• Define motion envelopes
• Refine motion paths
• Size motors and actuators
• Compute peak loads
• Optimize work-cycle times
• Ensure precise positions

You can quickly explore hundreds or even thousands of design variations, plotting your results in graphs or comparing them in high-speed animations.

Best of all, the results you get with MSC.ADAMS are highly precise and accurate. You can rely on them to guide you in refining and optimizing your mechanical system designs.
You can use MSC.ADAMS to improve the design of virtually anything that moves — from simple linkages and small electromechanical devices to complete automobiles, aircraft, off-highway equipment, railcars, and more.

Virtual prototyping with MSC.ADAMS follows the same basic steps used in physical prototyping. You build your system design, run it through a battery of tests, validate your test results, refine your design, and iterate until optimizing system performance. The main difference is that you do all of this on the computer — quickly, easily, and cost-efficiently.

Then you can take the technology a step further by using MSC.ADAMS to help automate the development process itself. You can capture your engineering team’s standard methods and tasks in software, so they can immediately begin leveraging the benefits of virtual prototyping even with little or no formal MSC.ADAMS training.
MODELING
MSC.ADAMS’ familiar interface and point–and–click operation make it easy for even novice users to create complete, accurate mechanical system models. Drag–and–drop positioning lets you sketch a rough model without having to define numeric coordinates at every step.

With MSC.ADAMS, you build a model the same way you build a physical system — by creating and assembling parts, connecting them with joints, and driving them with motion generators. You can then define forces, such as springs or friction, and apply them on or between individual parts in your full–system design.

You can also give your MSC.ADAMS model parametric properties, enabling you to select a design variable, sweep it through a range of values, and initiate a set of parametric simulations to study design sensitivities.

If you choose to build a model in your preferred CAD environment, you can import its geometry directly into MSC.ADAMS through any of the industry–standard interfaces provided by our optional ADAMS/Exchange module.

SOLUTION
When you're finished modeling your mechanical system and are ready for simulation, MSC.ADAMS provides the robust solution engine you need. The software checks your model and automatically formulates and solves the equations of motion for kinematic, static, quasi–static, or dynamic simulations.

With MSC.ADAMS, you don't have to wait until computations are complete to begin seeing the results of your simulation. You can view animations and plots — and continue to refine your design — even as your simulation is running, saving valuable time.

Using MSC.ADAMS' design–of–experiments (DOE) capability, you can run a statistically significant battery of tests to determine your system's sensitivity to design or manufacturing variations. You define the variables you wish to test — including specific value ranges or tolerances — then MSC.ADAMS produces an array of simulation permutations required for a complete experiment and plots the comparative results for trend analysis.

For design optimization, you can define your variables, constraints, and design objectives, then have MSC.ADAMS iterate automatically to the design, providing optimal system performance.

VISUALIZATION
An important advantage of virtual prototyping is the ability it gives you to easily modify design variables and instantly visualize the effects of these changes on total system performance.

MSC.ADAMS’ OpenGL graphics port allows fast, high–quality animation and detailed plotting for viewing the results of your simulation. You can animate your model in wireframe or shaded formats, and isolate a single frame or superimpose a series of images.

MSC.ADAMS then lets you plot your model's behavior (displacements, velocities, accelerations, forces) and compare the results to other simulations.

INTEGRATION
Custom and industry–standard interfaces available with MSC.ADAMS let you easily transfer model geometry, component flexibility, loads, control laws, and other data from one CAD/CAM/CAE software environment to another.
WITH MSC.ADAMS, YOU CAN:

- Select from wireframe or shaded images for flexibility in animation
- Stop on single frames or superimpose a series of images for detailed visualization
- Generate plots quickly through rapid scanning of measures and data
- Easily create and modify table and plot displays for increased document utility
- Simultaneously display animations and plots in multiple windows for easy comparison
- Quickly create Fourier transforms, Bode plots, and other signal-processing output
- Examine linear results in time and frequency domains to understand transient and vibratory effects
- Choose from PostScript, PICT, and HPGL for hardcopy output of plots and animations

Viewing the results of your MSC.ADAMS simulations in animation can improve your understanding of design behavior and help bring your design reviews to life.