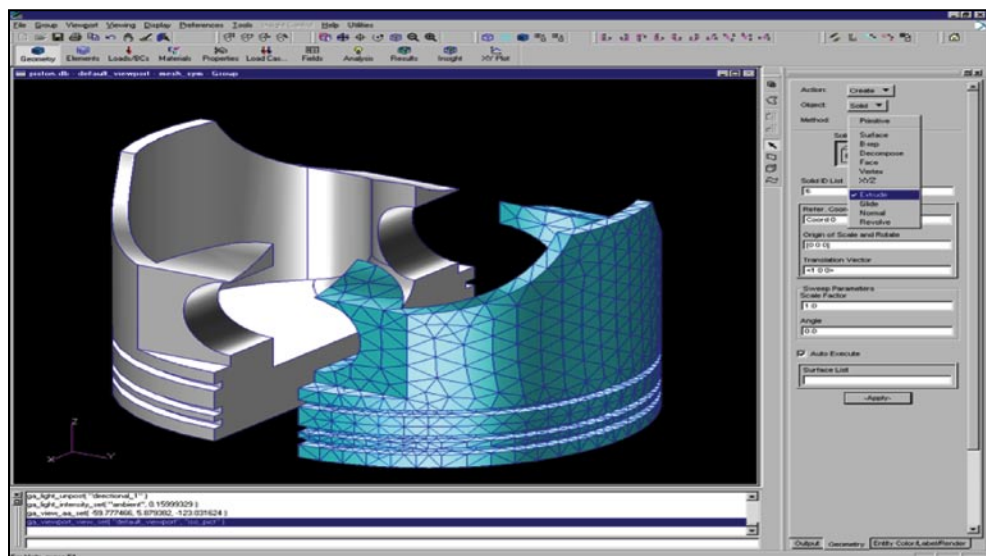


MD Patran

The Industry's leading finite element modeling environment



Overview

MD Patran is the most comprehensive pre and post-processing environment for MD Nastran and helps engineers conceptualize, develop and test product designs. Used by the world's leading manufacturing companies as their standard tool for the creation and analysis of simulation models, MD Patran links design, analysis, and results evaluation in a single environment.

For companies, wanting to use MD Nastran to reduce the time and cost of the product development process through the increased use of multidiscipline simulation, MD Patran is the best solution for finite element modeling and results visualization and processing. By enabling engineers to access one of the industry's leading analysis program from MSC.Software, MD Patran can help organizations reduce the cost and confusion of maintaining multiple pre and post-processing tools in different parts of the organization and get better products to market, faster.

Through the seamless integration of CAD geometry, pre and post-processing capabilities and the ability to perform sophisticated simulation on virtual parts, assemblies and structures, MD Patran is a key part of the design process for companies who rely on fast time to market and extraordinary product quality to drive market share and profits.

MD Patran enables engineers to directly import CAD geometry from whichever CAD program an engineer chooses, define loads, boundary conditions, and material properties, perform different simulations under different conditions, visualize the results, and ultimately better understand the relationship between different design decisions and product performance characteristics such as stress, strain, vibration, heat transfer and many more. MD Patran allows engineers complete integration with MD Nastran.

Capabilities

- Complete integration with MD Nastran™.
 - Intuitive graphical interface with direct access of CAD geometry with automatic/interactive feature recognition.
 - Robust automatic surface and solid mesh generation with advanced surface mesh-on-mesh capability.
 - Create connectors and bolts with pre-loads easily using the new Bolt Tool.
 - Full 3D general contact available for linear and nonlinear analyses.
 - Glued contact available for Statics, Normal Model, Buckling, and Dynamic Analyses.
 - Support for MD Nastran's Exterior Acoustic Analysis.
 - Support for MD Nastran's Design Optimization and Topology Optimization.
 - Support for MD Nastran's Superelements
 - Comprehensive results post-processing.
 - Standardization through results templates.
 - MD Patran Command Language (PCL).
- ### Benefits
- Get access to all of MD Nastran's power Multi-Discipline capabilities.
 - Increase productivity of your design and development process
 - Reduce development costs through increased use of simulation technologies
 - Improve productivity and accuracy with multidiscipline analysis and optimization
 - Chain Multi-Discipline analyses together for complete component or system simulation.

In addition, MD Patran's intuitive graphical interface is built to be fully customizable to your organization's unique engineering processes. With Patran Control Language (PCL), engineers can supplement the powerful modeling and analysis capabilities with their own, customized applications, commands and menus. MD Patran users can easily and effectively iterate and evaluate different design decisions and reuse existing designs and results without non-value-added manual clean-up and recreation of data.

Direct Access of CAD Geometry

MD Patran enables direct access to geometry from leading CAD systems for creating finite element models. With direct access, geometry remains intact in the CAD format and is imported into MD Patran database without any translation or modification. Support for many industry-standard geometry exchange formats is provided. An option is also available for direct import into Parasolid ACIS format for several CAD systems and exchange formats. All finite elements, loads, boundary conditions, and material properties can be associated to the geometry

Geometry Creation and Editing

MD Patran contains an advanced set of geometry creation tools in addition to the direct CAD access capabilities for generating finite element model geometry.

Integration with MD Nastran

MD Patran is tailored to support MD Nastran to enable the use of common finite element models and perform multidiscipline analysis. Perform linear, nonlinear, and dynamic structural analyses using MD Nastran's best in class solver technology. Couple your structural analyses with interior and exterior acoustic simulations or optimize your design using MD Nastran's Design Optimization and Topology Optimization capabilities.

Corporate

MSC.Software Corporation
2 MacArthur Place
Santa Ana, California 92707
Telephone 714 540 8900

www.mssoftware.com

Graphical User Interface

MD Patran's graphical user interface is a forms-based, mouse-driven menu system for the operation of all tasks. It is designed to be easy to learn and use.

Interactive Help On-Line

MD Patran's "Help" system provides a "context-sensitive" hypertext mechanism enabling the user to quickly navigate through the entire on-line document to find information on topics of interest.

Finite Element Modeling

MD Patran finite element modeling system permits the user to directly access model geometry and to quickly develop finite element meshes. Easily create and modify your finite element mesh using automated mesh generators and MSC. Software's technology such as the Mid-Plane and Advanced Surface Meshers,

Loads and Boundary Conditions

MD Patran provides a complete set of loads and boundary conditions such as structural and thermal. Functional variations can be evaluated with mathematical factors or other analysis results. Load and boundary conditions can be specified as total or incremental basis. A new Bolt Tool is included to easily create bolts and other connectors for more efficient assembly modeling and analysis.

Materials and Elements Properties

MD Patran supports an array of material models such as Isotropic, orthotropic, anisotropic, composite, thermal isotropic, thermal orthotropic and thermal anisotropic to perform a variety of analysis. In addition, fluid properties are also supported.

Results Evaluation

MD Patran can quickly and clearly display analysis results in structural, thermal, fatigue, fluid, magnetic terms, or in relation to any other application where the resultant values are associated with their respective finite elements or nodes.

Europe, Middle East, Africa

MSC.Software GmbH
Am Moosfeld 13
81829 Munich, Germany
Telephone 49 89 431 98 70

Imaging

Imaging encompasses the complete graphics capability found within the MD Patran product, including graphic shading and visual verification prior to analysis. Imaging features a number of options that take advantage of specialized hardware capabilities, including local view manipulation, local shading, multiple light sources, and transparency.

System Utilities

The system utilities constitute a collection of programs and features that support the MD Patran environment. They represent a framework in which the user can access not only MD Patran application modules, but also other tools found within a heterogeneous hardware and software environment.

Patran Command Language

PCL is the programming language at the heart of MD Patran. PCL is a high-level, block-structured language that provides many features found in traditional programming languages. It can be used to write application or site-specific commands and menus, perform variational modeling, and to more completely integrate with commercial or in-house software programs.

Configuration Requirements

MD Patran currently supports many Unix, Windows and Linux based computer platforms, operating systems and graphic devices. System resources required to operate MD Patran depend upon a number of factors including the overall size and complexity of each model. Please consult with your local MSC. Software representative for a current list of MD Patran supported computer systems for your particular application.

Asia-Pacific

MSC.Software Japan LTD.
Shinjuku First West 8F
23-7 Nishi Shinjuku
1-Chome, Shinjuku-Ku
Tokyo, Japan 160-0023
Telephone 81 3 6911 1200