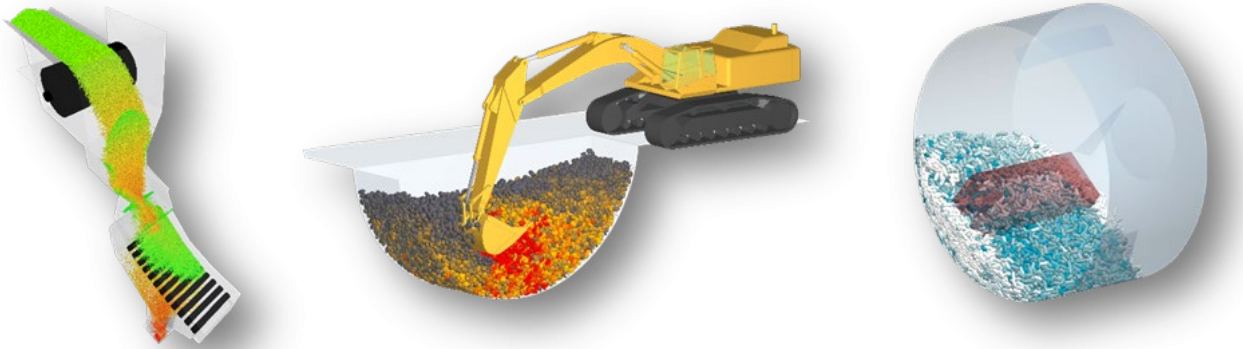


OVERVIEW OF EDEM SOFTWARE

Altair EDEM™ is the market-leading software for bulk and granular material simulation. Powered by state-of-the-art Discrete Element Modeling (DEM) technology, EDEM quickly and accurately simulates and analyzes the behavior of coal, mined ores, soils, fibers, grains, tablets, and powders.

EDEM simulation provides engineers with crucial insight into how bulk materials will interact with their equipment during a range of operation and process conditions.



EDEM is used by blue-chip companies around the world to design and optimize equipment that handles or processes granular materials in a range of industries. It is also the DEM software of choice of over 300 leading academic institutions worldwide.

THE EDEM ADVANTAGE



SIMULATE ANY MATERIAL

Comprehensive range of validated physics models available: simulate any material type and shape: large lumps, dry, fine, sticky, cohesive, flexible



EASY WORKFLOW

Intuitive user interface for quick simulation set-up and advanced visualization and analysis



HIGH PERFORMANCE

Fast and scalable compute performance across CPU, GPU and multi-GPU solvers – simulate large and complex particle systems



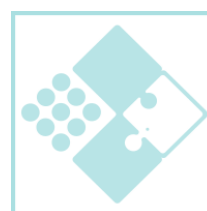
MATERIAL MODELS AVAILABLE

Instant access to a library of thousands of pre-calibrated material models representing rocks and ores. Set of material models with advanced physics available for soils and powders.



ADVANCED CUSTOMIZATION

Custom physics with EDEM's highly versatile Applications Programming Interface for complex simulations and advanced material behavior: sticky solids, breakage, flexible fibers & more.



CAE INTEGRATION

Couple with Finite Element Analysis (FEA) Multi-body Dynamics (MBD) and Computational Fluid Dynamics (CFD).

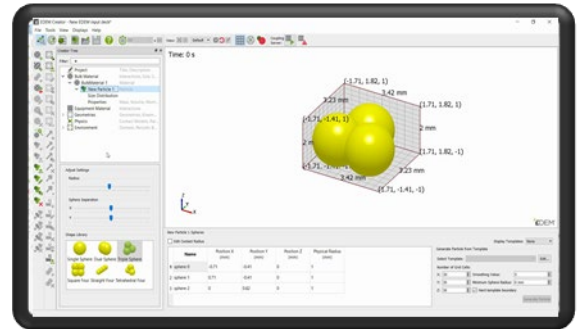
EDEM COMPONENTS

EDEM software is made of 3 core components: EDEM Creator, Simulator and Analyst.

EDEM Creator

EDEM Creator is the pre-processor for setting up an EDEM simulation model.

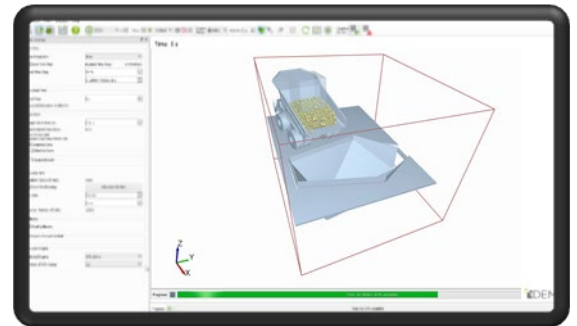
- Setup simulations in a fast, logical manner with EDEM's intuitive and user friendly interface
- Import equipment geometry from a wide range of CAD files (IGES, STL, STEP and more)
- Assign equipment motion (linear, rotational, sinusoidal and more)
- Model real world particle shapes using the validated and highly versatile multi-sphere method
- Select contact physics models, define material properties or add a material model straight from our extensive libraries.



EDEM Simulator

EDEM Simulator is a powerful solver for fast and efficient simulations.

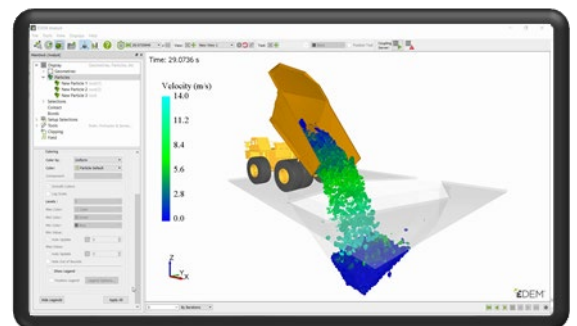
- Cutting edge DEM solver, highly parallelized for use on multi-core shared memory workstations, GPU hardware and multi-GPU systems
- Solver engine is fully double precision across all platforms
- Simulate large and complex particle systems
- Live viewer window to easily review progress and assess design performance
- Start and stop simulations at any time or configure on-the-fly data output



EDEM Analyst

EDEM Analyst is the post-processing environment where simulations are reviewed and analyzed.

- Advanced and powerful post-processing capability
- Extensive set of tools for visualization and analysis (coloring, graphing, bin groups)
- Create high resolution images and videos
- Data mining: option to export all simulation results data in .csv format as well as an EnSight file for advanced visualization
- Access EDEMPy: a Python library for post-processing and analyzing simulation data

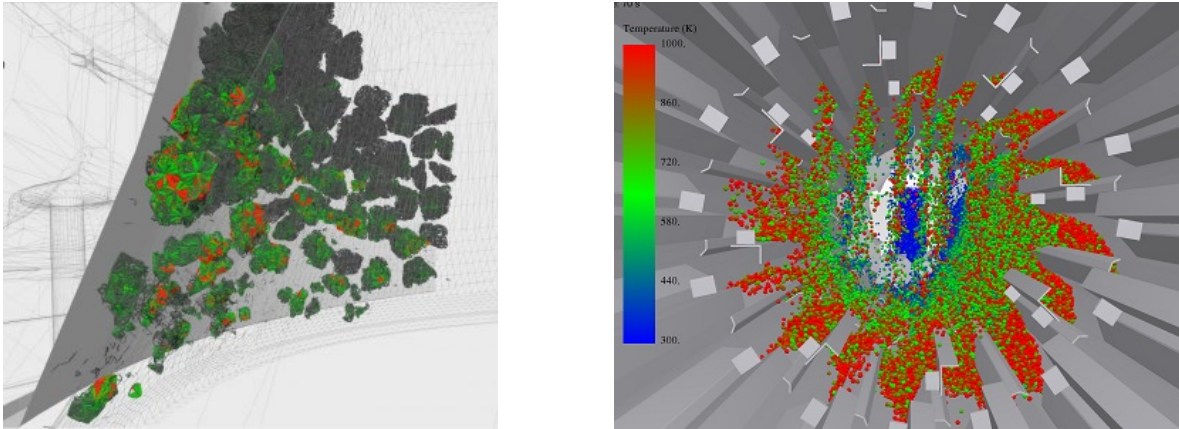


CUSTOMIZATION / API

EDEM simulations can be customized and extended using the EDEM Application Programming Interface (API) – the most highly developed API for DEM simulation on the market.

The EDEM API employs standard C++ scripting and is very versatile with many unique features designed specifically for development of advanced DEM simulations. Users can go beyond the scope of EDEM's standard physics models by writing their own custom physics.

Examples of applications include modeling of particle cohesion in bulk solids due to moisture or other attractive forces, deformation, fracture and break-up of solids, flexible fibres, charged & magnetic particles and many more.



A range of example models are readily available to users including the Tavares breakage model. This breakage model addresses the different mechanisms of breakage including both surface damage and fragmentation and can simulate any type of breaking mechanism: compression, shearing, weakening etc.

CAE INTEGRATION

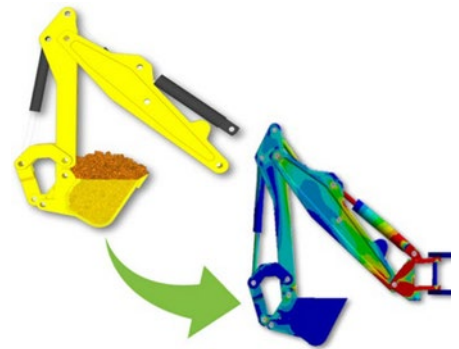
EDEM has the interfaces and functionality to couple with all of the major CAE technologies such as finite element analysis (FEA), multi-body dynamics (MBD) and computational fluid dynamics (CFD).

Bringing EDEM into play with other CAE tools enhances the insights and design capabilities of these tools and enables a more integrated and seamless multi-physics simulation capability for engineering design and analysis.

EDEM and Finite Element Analysis

Using EDEM in combination with Finite Element Analysis (FEA) provides manufacturers of bulk materials handling equipment – such as bucket loaders, transfer chutes, and truck bodies – with valuable additional insight as to how their equipment will perform during operation.

EDEM provides design engineers with an accurate representation of the pressure and forces acting on equipment as a result of a bulk material. By transferring this realistic material data to their FEA software, engineers no longer need to rely on hand calculations or approximation during the design cycle and can have confidence that a proposed design will meet requirements.



EDEM and Multi-body Dynamics

Coupling EDEM with Multi-body Dynamics (MBD) software allows manufacturers of heavy equipment to gain better insight into machine-material interaction. EDEM-MBD co-simulation provides the capability to model and visualize dynamics of equipment movement and examine how loads exerted by bulk materials are distributed throughout the mechanical system.

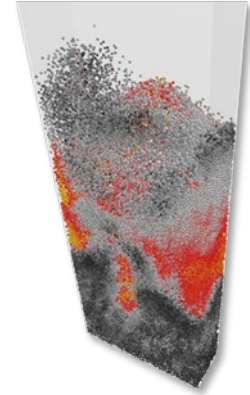


The EDEM Coupling Interface enables coupling of EDEM with 3rd party MBD simulation software, as well as implementation of user-defined kinematics and rigid body dynamics models within the EDEM simulation environment.

EDEM and Computational Fluid Dynamics

Particle-fluid systems such as fluidized beds, solid-liquid mixing, spray coating, can be investigated by coupling EDEM with Computational fluid dynamics (CFD) software.

The EDEM Coupling Interface provides a means of coupling EDEM with CFD solvers for 1-way and 2-way coupled simulations.



SYSTEM REQUIREMENTS

Component	Low Specification	Recommended Specification
RAM	8 GB	32 GB+
Processor	Intel Core i7 Intel Xeon Processor Family (8+ cores) AMD Ryzen 7	Intel i9 Intel Xeon Processor Family (16+ cores) AMD Ryzen Threadripper
Graphics Display	Any modern NVIDIA or AMD graphic card in the market.	Any modern NVIDIA or AMD graphic card in the market.
GPU Simulation	NVIDIA GeForce GTX 1080 NVIDIA GeForce GTX 1080 Ti NVIDIA GeForce RTX 2080 AMD Radeon Pro WX7100	NVIDIA Volta GPU cards (Quadro GV100, Tesla V100, TITAN V) NVIDIA Pascal GPU cards (Quadro GP100, Tesla P100) NVIDIA Turing GPU cards (RTX 2080 Ti)
Hard Disk Space	100 GB (2 GB for the software)	1 TB or more for simulation data files

Supported Platforms

Windows 7 - 64 bit
 Windows 8 - 64 bit
 Windows 10 - 64 bit
 RedHat Enterprise Linux 6 - 64 bit
 RedHat Enterprise Linux 7 - 64 bit

For more information visit: <http://www.altair.com/edem>