

List of finite element software packages

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This is a list of software packages that implement the finite element method for solving partial differential equations.

Software	Features	Developer	Version	Released	License	Price	Platform
Agros2D	Multiplatform open source application for the solution of physical problems based on the Hermes library	University of West Bohemia	3.2	2014-03-03	GNU GPL	Free	Linux, Windows
CalculiX	It is an Open Source FEA project. The solver uses a partially compatible ABAQUS file format. The pre/post-processor generates input data for many FEA and CFD applications	Guido Dhondt, Klaus Wittig	2.11	2016-07-31	GNU GPL	Free	Linux, Windows
Code_Saturne	is an Open Source CFD software package	EDF	4.0.7	2017-01-20	GNU GPL	Free	Linux, FreeBSD
DIANA FEA	General purpose finite element package utilised by civil, structural and geotechnical engineers.	DIANA FEA BV, The Netherlands	10.1	2016-11-14	Commercial	Paid	Windows, Linux
deal.II	Comprehensive set of tools for finite element codes, scaling from laptops to clusters with 10,000+ cores. Written in C++.	Wolfgang Bangerth, Timo Heister, Guido Kanschat, Matthias Maier et al.	8.4.1	2015-08-01	QPL up to release 7.2, LGPL after that	Free	Linux, Unix, Mac OS X, Windows
DUNE	Distributed and Unified Numerics Environment, written in C++	DUNE Developer team (https://dune-project.org/community/people/)	2.4.1	2016-02-29	GPL Version 2 with Run-Time Exception	Free	Linux, Unix, Mac OS X
Elmer	Open source multiphysical simulation software developed by Finnish Ministry of Education's CSC, written primarily in Fortran (written in Fortran90, C and C++)	CSC	8.2	2016-03-15	GPL	Free	Linux, Mac OS X, Windows
FEBio	Finite Elements for Biomechanics	University of Utah, MRL	2.5	2015-10-09	Custom	Free	Linux, Mac OS X, Windows
FEniCS Project	Software package developed by American and European researchers with the goal to enable automated solution of differential equations	FEniCS Team	1.6.0	2015-07-29	LGPL (Core) & GPL/LGPL (Non-Core) ^[1]	Free	Linux, Unix, Mac OS X, Windows
FeatFlow	High-performance computational fluid dynamics CFD FEM solver	FEAST Team	1.3		Open Source	Free	Linux, Unix, Mac OS X
FEATool Multiphysics	Matlab and GNU Octave FEM PDE simulation toolbox	Precise Simulation	1.6	2017-03-17	Proprietary EULA	Free for personal use, up to 2,000 nodes/6,000 unknowns ^[2]	Windows, Mac OS X, Linux, Unix
Femap	Finite element pre- and post-processor	Siemens PLM Software	11.4.0	2016-09-16	Proprietary commercial software		Windows
FreeFem++	Software written in C++ for rapid testing and finite element simulations. The problem is defined in terms of its variational formulation	Université Pierre et Marie Curie and Laboratoire Jacques-Louis Lions	3.45	2016-03-11	GPL	Free	Linux, Mac OS X, Windows, Solaris
GetFEM++	A generic finite element library written in C++ with interfaces for Python, Matlab and Scilab. It focuses on modeling of contact mechanics and discontinuities (e.g. cracks).	Yves Renard, Julien Pommier	5.0	2015-07	LGPL	Free	Unix, Mac OS X, Windows
Hermes Project	Modular C/C++ library for rapid development of space- and space-time adaptive hp-FEM solvers	hp-FEM group (http://www.hp fem.org/)	3.0	2014-03-01	LGPL	Free	Linux, Unix, Mac OS X, Windows
JuliaFEM	The JuliaFEM software library is a framework that allows for the distributed processing of large Finite Element Models across clusters of computers using simple programming models. JuliaFEM is written using Julia programming language.	JuliaFEM contributors	0.3.3	2015-05	MIT	Free	Linux, Unix, Mac OS X, Windows
Mathematica ^[3]	General purpose computation software.	Wolfram Research	11.2.0 (September 14, 2017) [±] (https://en.wikipedia.org/w/index.php?title=Template:Latest_stable_software_release/Mathematica&action=edit) ^[4]	Regularly	Proprietary		Linux, Mac OS X, Windows, Raspbian, Online service.
OOFEM	Object Oriented Finite EleMent solver, written in C++	Bořek Patzák	2.4	2016-02-15	GPL Version 2	Free	Unix, Windows
OpenFOAM	Primarily a finite volume code for CFD, but includes a small amount of finite element analysis through tetrahedral decomposition of arbitrary grids	OpenFOAM Foundation	4.1	2016-10-13	GPL	Free	Unix, Linux
OpenSees	Open System for Earthquake Engineering Simulation				Non Commercial (http://opensees.berkeley.edu/OpenSees/copyright.php)	Free	Unix, Linux, Windows
Z88/Z88Aurora	Freeware finite element package; The present version Z88Aurora V3 offers, in addition to static strength analysis modules such as non-linear strength calculations (large displacements), simulations with non-linear materials, natural frequency and static thermal analysis.	Frank Rieg	Z88 V14, Z88Aurora V3	2015-03	Custom	Free	Linux, Windows, Mac OS X
Abaqus	Advanced Franco-USA software from SIMULIA, owned by Dassault Systemes	Abaqus Inc.	6.14-AP	2014-11	Proprietary commercial software		Linux, Windows
CONSELF	CAE simulation from your browser	CONSELF SRL	2.9	2015-10	SaaS	Freemium	Web browser
FreeCAD	FreeCAD is a parametric 3D modeler with add-on FEM module		0.16.670	2016-07	LGPL		Linux, Windows, Mac OS X
HyperMesh		Altair			Proprietary commercial software		Linux, Mac OS X, Windows
ADINA	Finite element software for structural, fluid, heat transfer, electromagnetic, and multiphysics problems, including fluid-structure interaction and thermo-mechanical coupling	Developer			Proprietary commercial software		
Advance Design	BIM software for FEM structural analysis, including international design eurocodes	GRAITEC	2014	2013-09	Proprietary commercial software		
Autodesk Simulation	Finite Element software of Autodesk	Autodesk			Proprietary commercial software		Windows
ANSYS	US-based and -developed full CAE software package	Ansys Inc.	17.0	2016-01	Proprietary commercial software	Free student version available, up to 32,000 nodes/elements ^[5]	Windows, Linux
COMSOL Multiphysics	COMSOL Multiphysics Finite Element Analysis Software formerly FEMLAB	COMSOL Inc.	5.3	2017-04-25	Proprietary EULA		Linux, Mac OS X, Windows, Web browser
CosmosWorks	Part of SolidWorks	Dassault Systèmes SolidWorks Corp.			Proprietary commercial software		Windows
FIDESYS	FIDESYS Finite Element Analysis Software	Fidesys llc.	1.7.0	2017-07-25	Proprietary commercial software	Free academic version available	Linux, Windows, Web browser
Quickfield		Tor Cooperative	6.1	2015-12-22	Proprietary EULA		Windows
LS-DYNA	Best known for explicit dynamics / crash analysis	LSTC - Livermore Software Technology Corporation	R8.0	2015-03	Proprietary commercial software		Linux, Windows
Nastran	Originally developed for NASA, now available commercially from several software companies	MSC NASTRAN, Siemens PLM NX Nastran ^[6]	2014	2014	Proprietary EULA		Linux, Mac OS X, Windows
RFEM	3D finite element analysis software	Dlubal Software	5.06	2016-02	Proprietary commercial software	Free student license available ^[7]	Windows
SimScale	German 100% web-based CAE platform	SimScale GmbH	14	2013-07	SaaS	Free community version available ^[8]	Web browser
VisualFEA	Finite element software for structural, geotechnical, heat transfer and seepage analysis	Intuition Software	5.11	2016-01	Proprietary software	Free educational version available ^[9]	Mac OS X, Windows
JCMsuite	Finite element software for the analysis of electromagnetic waves, elasticity and heat conduction	JCMwave GmbH	3.6.1	2017-01-27	Proprietary EULA		Linux, Windows
CAEplex	A really easy web-interface for FEA	Seamplex	N/A	2017-02	SaaS for GNU GPL Back-end	Free plan available ^[10]	Web browser
QuickerSim CFD Toolbox	Finite element software for Computational Fluid Dynamics (CFD) in Matlab.	QuickerSim Ltd.	2.0	2017-07-20	Proprietary commercial software	Free version for 2D steady flows available ^[11]	Linux, Mac OS X, Windows

References

- "FEniCS Project" (https://fenicsproject.org/). Retrieved 2017-06-21.
- "FEATool Multiphysics - Product Information" (https://www.featool.com/get-featool/). *Featool.com*. Retrieved 2017-05-28.
- Mathematica Documentation (http://reference.wolfram.com/language/FEMDocumentation/guide/FiniteElementMethodGuide.html)
- "Mathematica Quick Revision History" (http://www.wolfram.com/mathematica/quick-revision-history.html). Retrieved 2017-03-16.
- "Student Products - Free Simulation Software" (http://www.ansys.com/Products/Academic/ANSYS-Student). *Ansys.com*. Retrieved 2017-05-28.
- "NX Nastran: Siemens PLM Software" (https://www.plm.automation.siemens.com/en_us/products/simcenter/nastran/). *Plm.automation.siemens.com*. Retrieved 2017-05-28.
- "Free Student License | Dlubal Software" (https://www.dlubal.com/en/education/students/free-structural-analysis-software-for-students). *Dlubal.com*. Retrieved 2017-05-28.
- "Plans & Pricing - SimScale Simulation Platform" (https://www.simscale.com/product/pricing). *Simscale.com*. Retrieved 2017-05-28.
- "Browsing VisualFEA (Finite Element Analysis) by Title" (https://ecommons.cornell.edu/handle/1813/43749/browse?type=title). *Ecommons.cornell.edu*. 2016-03-01. Retrieved 2017-05-28.
- "CAEplex Plans & Pricing" (https://www.caeplex.com/pricing.php). *caeplex.com*. Retrieved 2017-06-19.
- "QuickerSim" (https://www.quickersim.com).

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