ParaView5.7支持的格式转换

Input

Output

vtk

Ensight

Exodus II File (*.e, *.ex2, *.exo, …)

Legacy VTK file (*.vtk)

PVTK

.pvd

.vtu

Xdmf Data file (*.xmf)

Xdmf3 Data file (*.xmf)

MeshIO支持的格式转换

There are various mesh formats available for representing unstructured meshes. meshio can read and write all of the following and smoothly converts between them:

Abaqus (.inp), ANSYS msh (.msh), AVS-UCD (.avs), CGNS (.cgns),
DOLFIN XML (.xml), Exodus (.e, .exo), FLAC3D (.f3grid), H5M(.h5m),
Kratos/MDPA (.mdpa), Medit (.mesh, .meshb), MED/Salome (.med), Nastran (bulk data, .bdf, .fem, .nas), Netgen (.vol,.vol.gz),
Neuroglancer precomputed format, Gmsh (format versions 2.2, 4.0, and 4.1, .msh),
OBJ (.obj), OFF (.off), PERMAS (.post,.post.gz, .dato, .dato.gz), PLY (.ply), STL (.stl), Tecplot .dat, TetGen .node/.ele,
SVG (2D output only) (.svg), SU2 (.su2),
UGRID(.ugrid), VTK (.vtk), VTU (.vtu),
WKT (TIN) (.wkt),
XDMF (.xdmf, .xmf).

RINGmesh 5.0 支持的I/O格式

输入格式：对GOCAD的ml/so格式友好

Input/Output GeoModels in 3D

Inputs GeoModel3D

Extension	Software
.gm	RINGMesh
.ml	SKUA-GOCAD
.so	SKUA-GOCAD
.msh (in progress)	GMSH

Outputs GeoModel3D

Extension	Software
.gm	RINGMesh
.ml	SKUA-GOCAD
.so	SKUA-GOCAD
.msh	GMSH
.tetgen	TetGen
.csmp	CSMP++
.vtk	ParaView
.mfem	MFEM
.inp	Abaqus
.adeli	Adeli
.fem	Feflow
.smesh	Smesh
.stl	

Input/Output GeoModel cross section in 2D

Inputs GeoModel2D

Extension	Software
.gm	RINGMesh
.model	Stradivarius
.svg	
.msh (in progress)	GMSH

Outputs GeoModel2D

Extension	Software
.gm	RINGMesh
.mfem	MFEM
.msh (in progress)	GMSH

Conversion

For converting a geological model from one file format to another, you can make use of the utility executable shipped with RINGMesh:
ringmesh-convert.

Here is the command syntax:

ringmesh-convert in:geomodel=/path/to/your/file.ext1
out:geomodel=/where/you/want/to/save/file.ext2

Note: to generate and compile this executable, you should select the option RINGMESH_WITH_UTILITIES in the cmake configuration options.

RINGMesh 3.0支持的IO格式

Extension	Software	Surface	Volume	Input	Output	Reference
gm	RINGMesh	×	×	×	×	
mesh/meshb	LM6	×	×	×	×	(Marechal Loic, 2016)
ts	Skua-Gocad	×		×	×	(Paradigm, 2016)
ml	Skua-Gocad	×		×	×	(Paradigm, 2016)
so	Skua-Gocad	×	×	×	×	(Paradigm, 2016)
fac	CUBIT	×			×	(Casarotti et al., 2007)
vtk	VTK	×	×		×	(Kitware, 2016)
pvd, vtp	Paraview	×			×	(Henderson, 2004)
mail	Aster	×	×		×	(EDF, 2016)
inp	Abaqus	×	×		×	(Dassault Systemes, 2016)
asc/dat	CSMP++	×	×		×	(Paluszny et al., 2007)
gprs	GPRS		×		×	(Cao, 2002)
smesh	Tetgen	×			×	(Si, 2015)
node/ele/neigh	Tetgen		×		×	(Si, 2015)
msh	Gmsh	×	×		×	(Geuzaine and Remacle, 2009)
html		×			×	
obj		×		×	×	
ply		×		×	×	
off		×		×	×	
stl		×		×	×	

看来，RINGMesh对地质模型的表面模型网格文件转换功能很强。

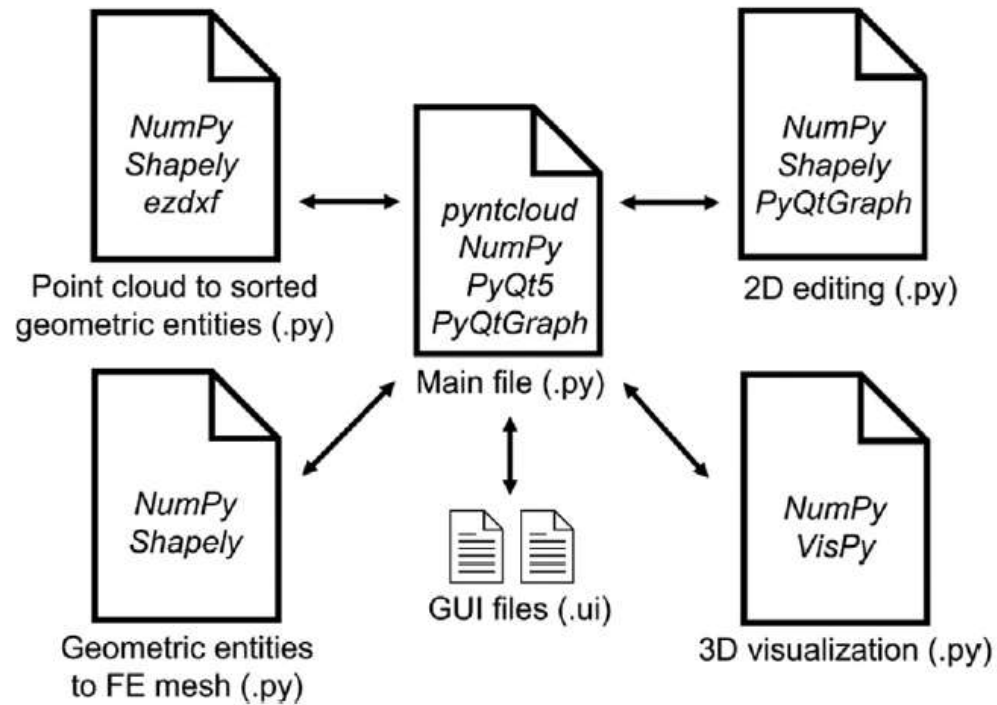体元(Voxel)转换为有限单元网格(FEM)，广泛应用于医学成像和建筑物建模等，3D体积模型构建，可拓展应用于地质建模。

有限单元网格通常使用四面体和六面体网格。
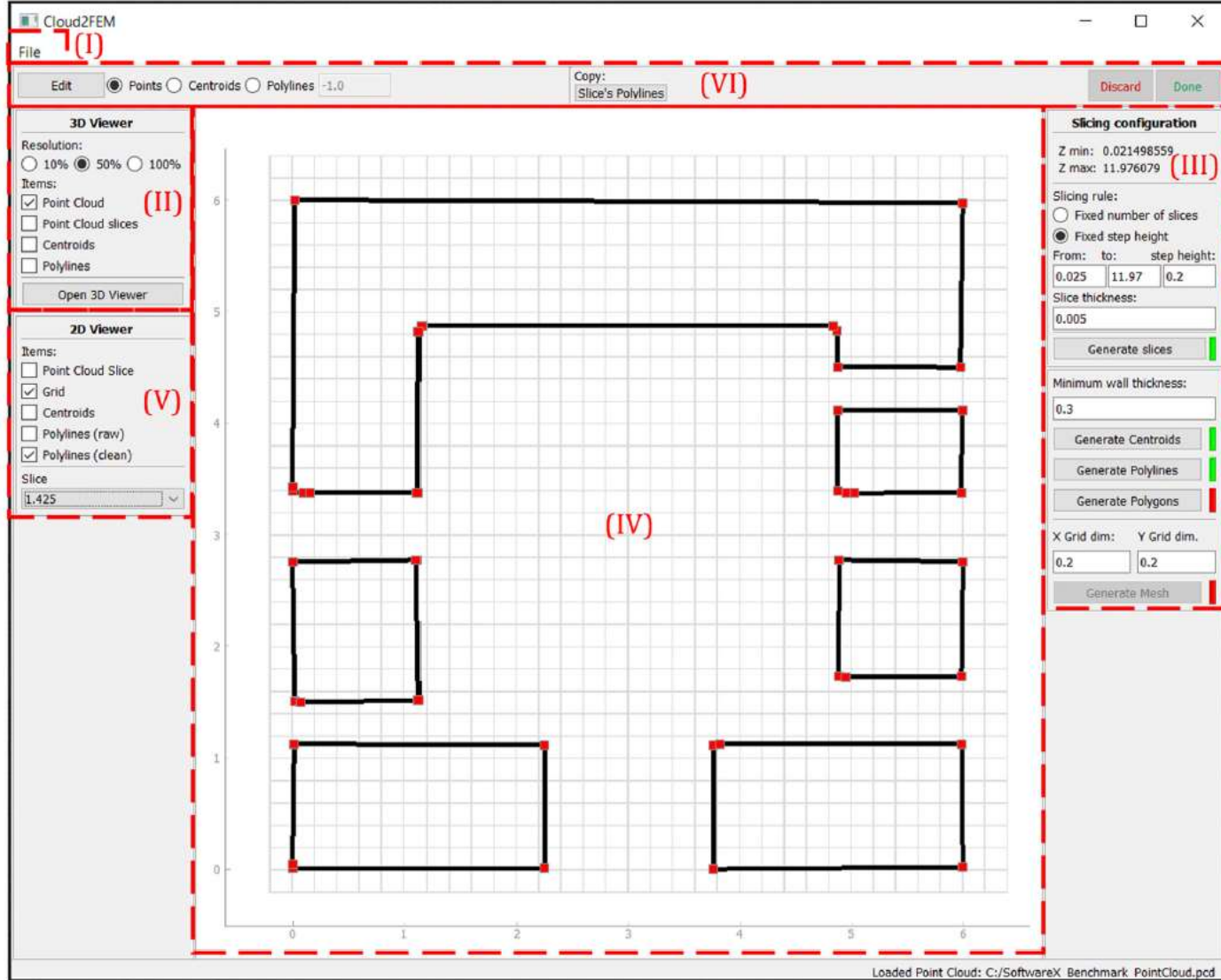
Fig. 1. Cloud2FEM main graphical user interface: (I) file menu, (II) 3D Viewer panel, (III) cloud/mesh processing panel, (IV) plot area, (V) 2D Viewer panel, (VI) editing bar.

Cloud2FEM GUI界面

Fig. 3. Cloud2FEM software architecture and libraries involved.