

アダプティブカーテシアンメッシュシステム *VisCART*のご紹介

2013年12月6日

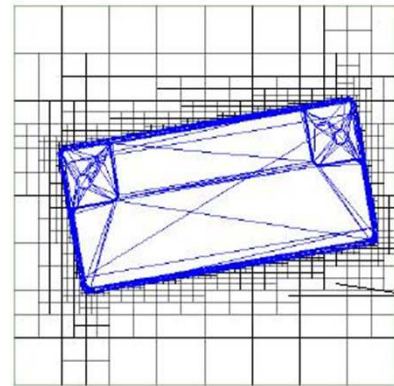
OpenCAEシンポジウム2013

日本イーエスアイ(株)

技術本部

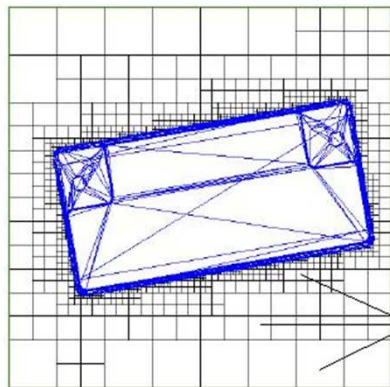
三邊 考志

- アダプティブカーテシアンメッシュャーシステム
 - Stairstep-Cartesianメッシュ
 - Projected Single/Multi Domain メッシュ
 - Shrinkwrap surface メッシュ



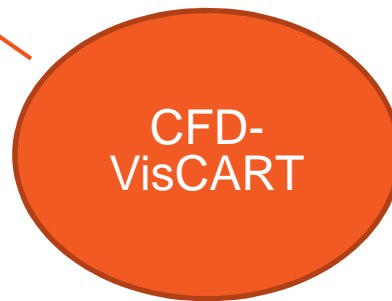
Omnitree Meshing

Cell size are diffe

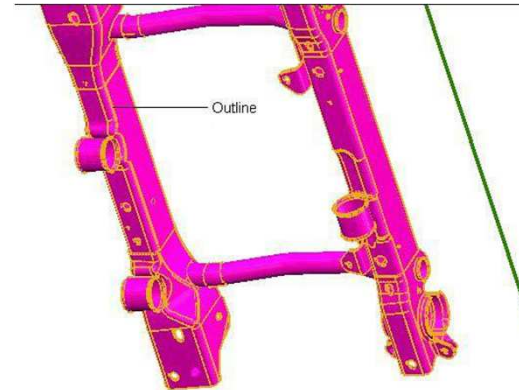


Octree Meshing

in x, y, z
dimens



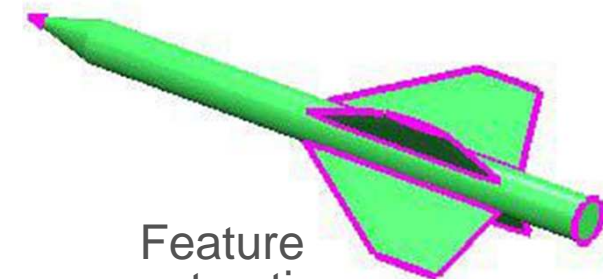
Leak Detection



Outline detection

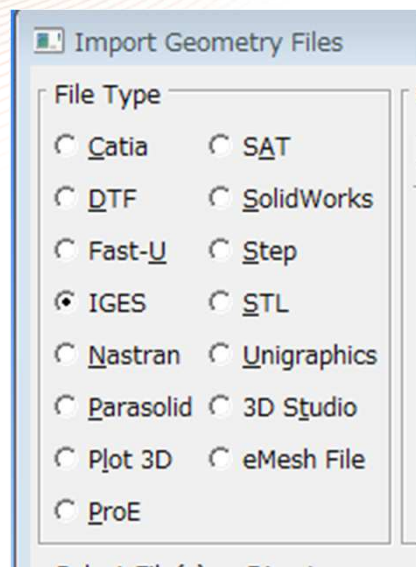
Mesh Generation

- Stair-case
- Single Domain
- Multi-Domain
- Shrink Wrap

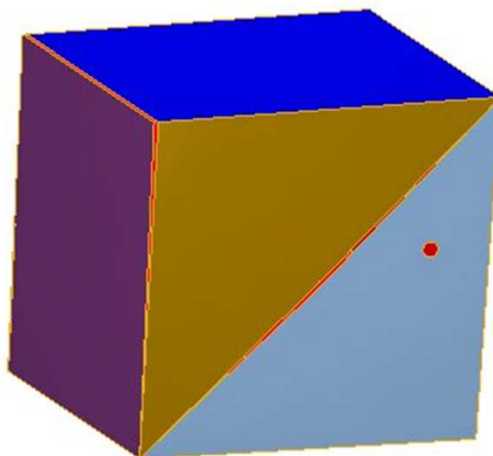


Feature extraction

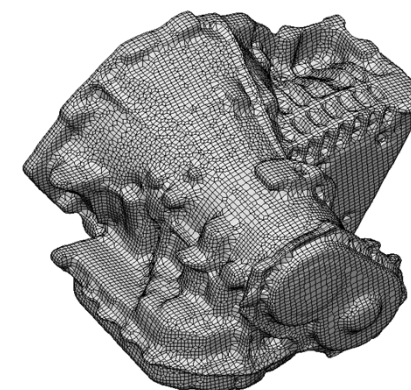
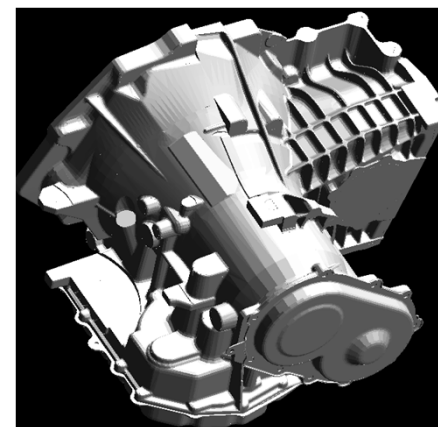
CADインポート



CADインポート



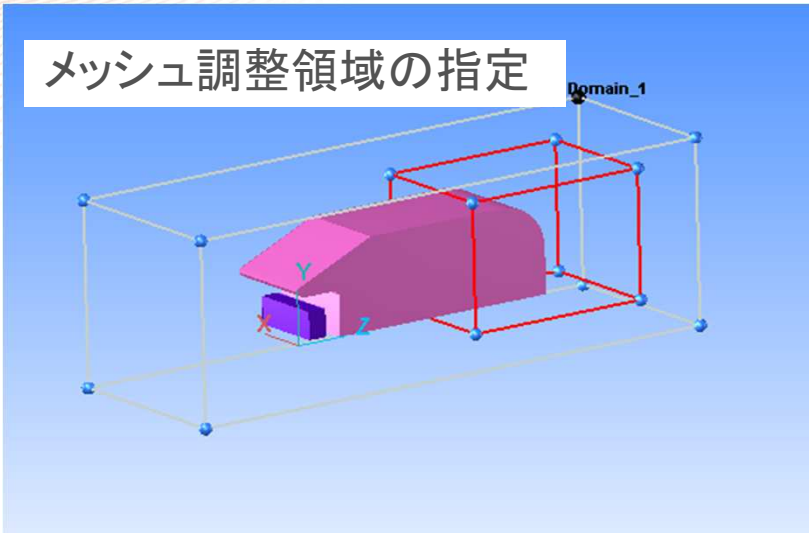
パッチ



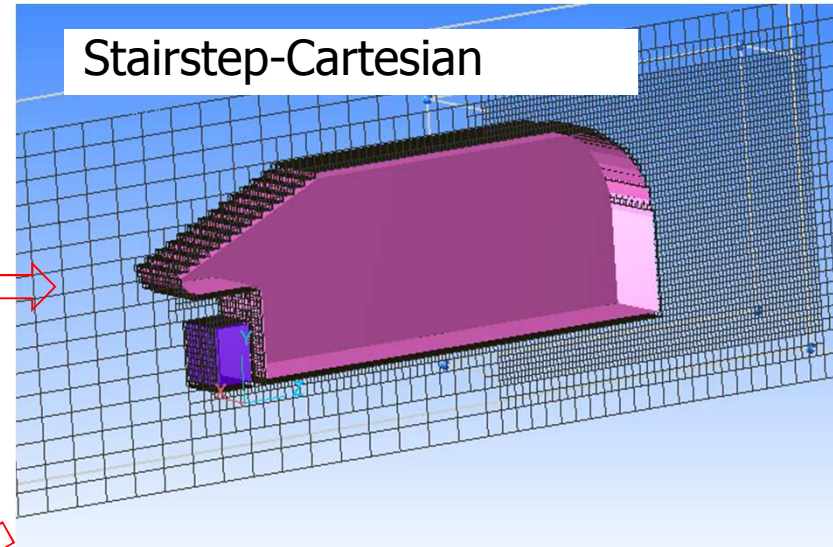
ラッピング

メッシュ作成プロセス

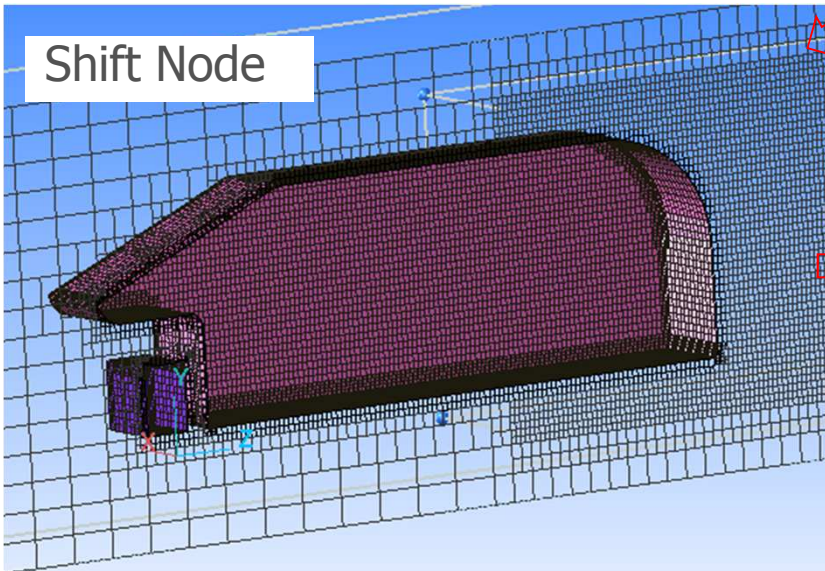
メッシュ調整領域の指定



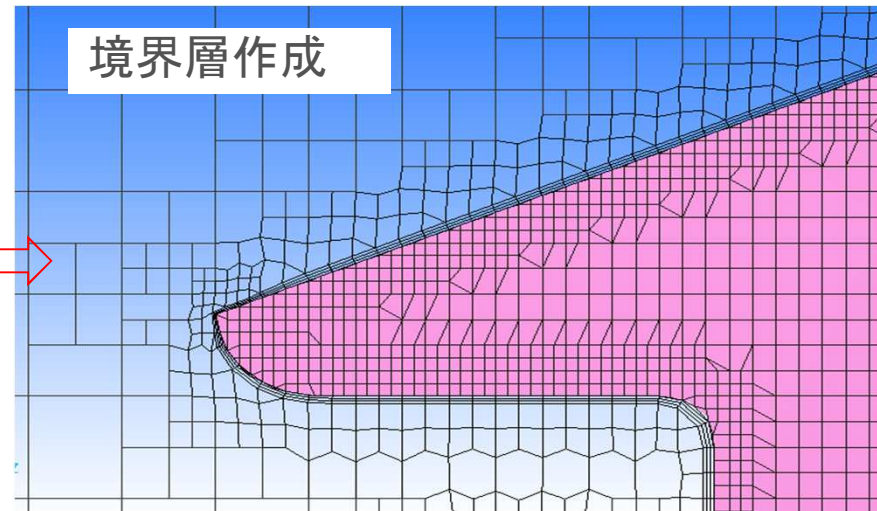
Stairstep-Cartesian



Shift Node



境界層作成



品質チェック → OpenFOAM

Set of quality criteria for 3rd party solvers

Face area (min area): 1E-020

Cell volume: 1E-020

Cell aspect ratio: 1000

Negative face pyramid (min volume): 1E-010

Orthogonality (max angle): 70

Max Skewness: 4

Cell aspect (determinant): 0.001

Move front nodes: 1.0

(02) X

All QC

OpenFOAM用
品質チェックと修正

```

===== Set of quality criteria for 3rd party solvers =====
Face/Pyr volume < 0.0                0
Min pyramid volume                    0.000000
Face small area < 0.0                 0
Min area                              0.000002
Max area                              0.023438
Cell volume < 0.0000                  0
Total volume                          21.438386
Min. volume                           0.000000
Max. volume                           0.002930
Cell aspect ratio > 1000.0             0
Max aspect ratio                      20.846118
Non orthogonal faces > 70.0           0
Max                                   69.434984
Average                               7.857826
Skewed faces > 4.0                   0
Max skewness                          3.309152
Cell aspect (determinant) < 0.0010    0
Min cell aspect                       0.013341
    
```

OpenFOAM
品質レポート

Save As

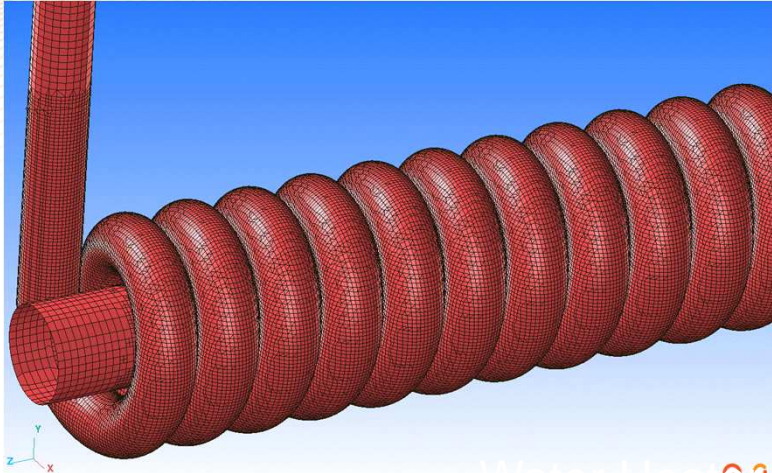
File Type

- VisCART Geometry
- DTF
- Cobalt
- OpenFOAM
- STL
- Nastran

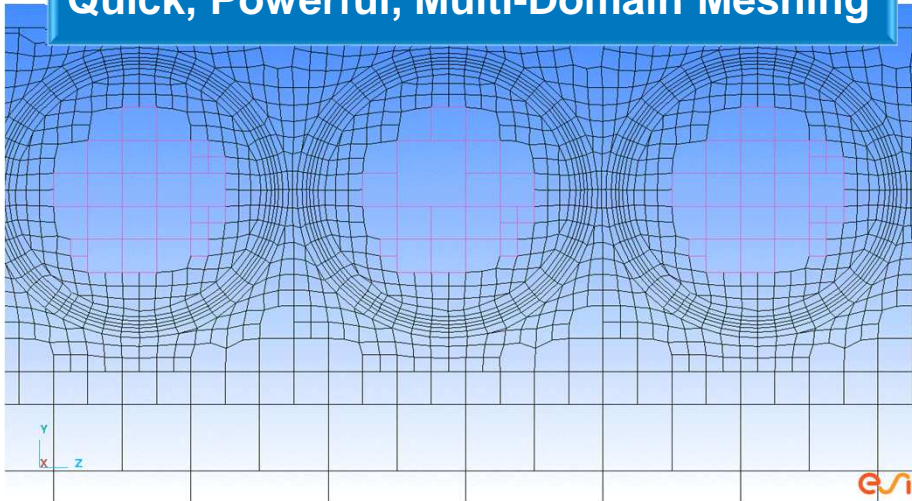
Select Directory

Directory: C g

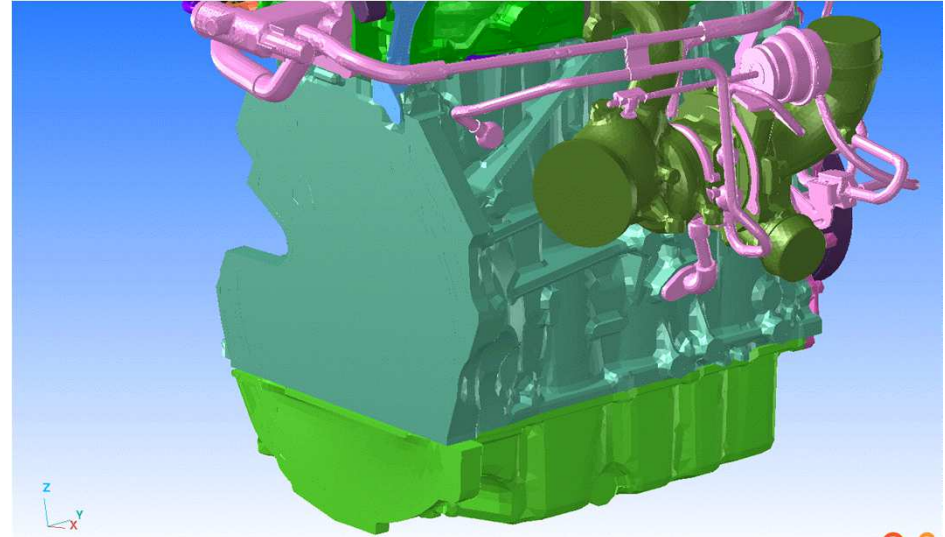
OpenFOAM
メッシュ書き出し



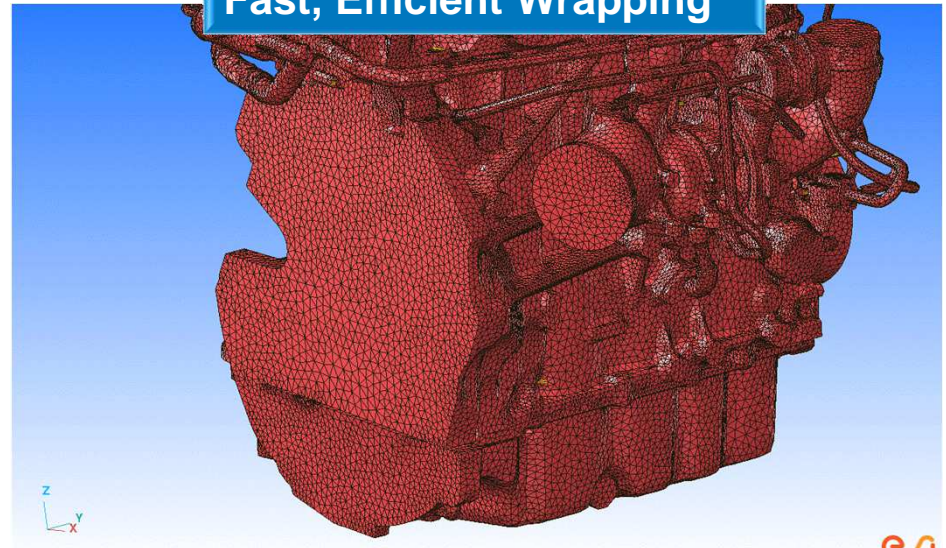
Quick, Powerful, Multi-Domain Meshing



Courtesy: Bissell Inc.



Fast, Efficient Wrapping





esi
get it right®

www.esi-group.com