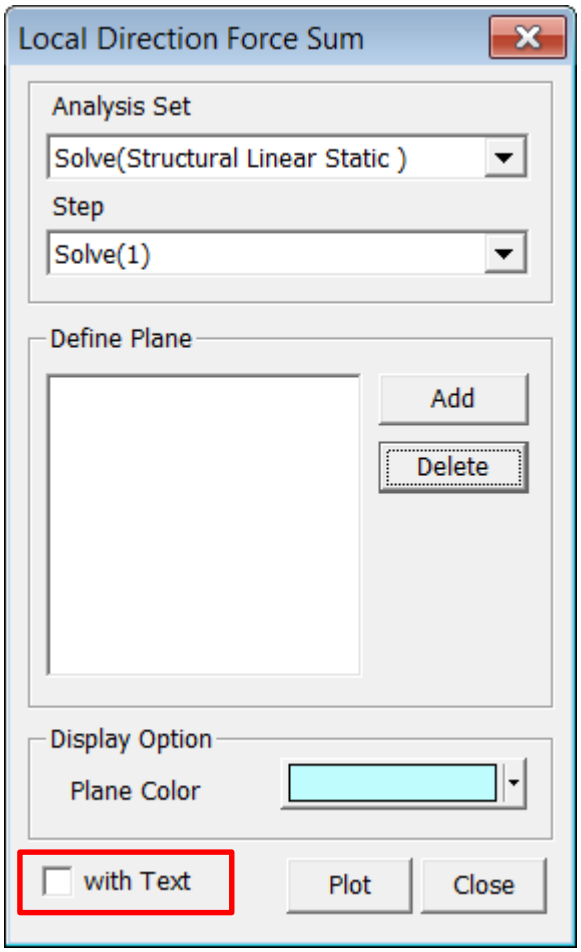
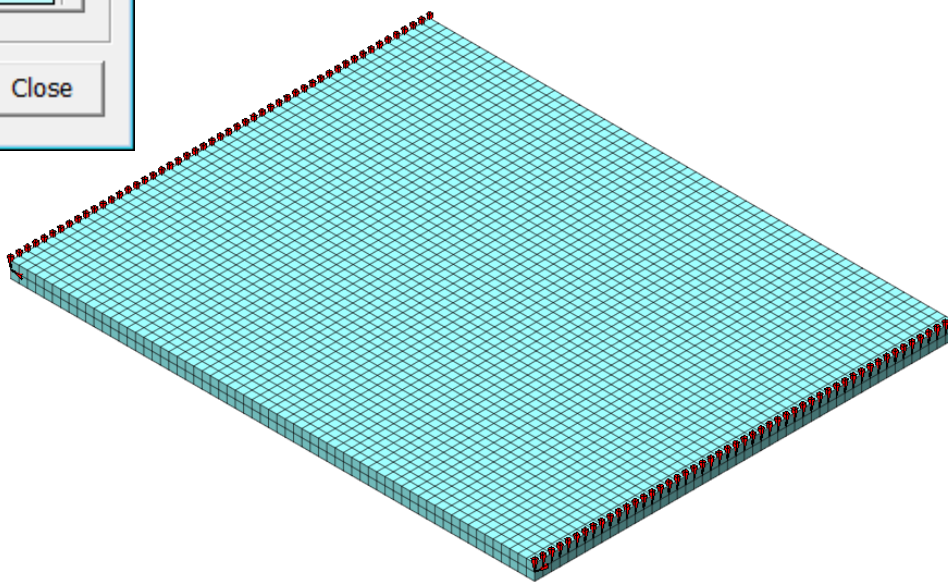
Q 如何使用計算實體斷面應力功能

A GTS中可在實體或版元素中對於任意斷面進行內力計算。

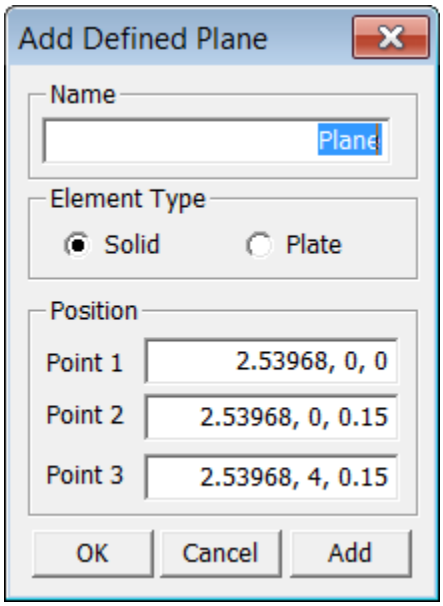
Result > Local Direction Force Sum

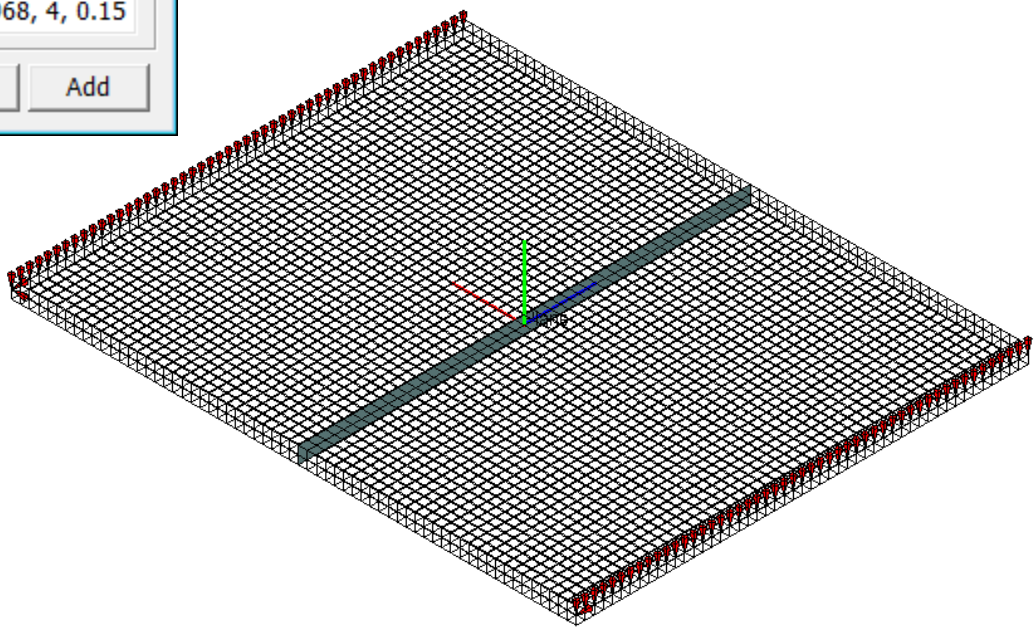


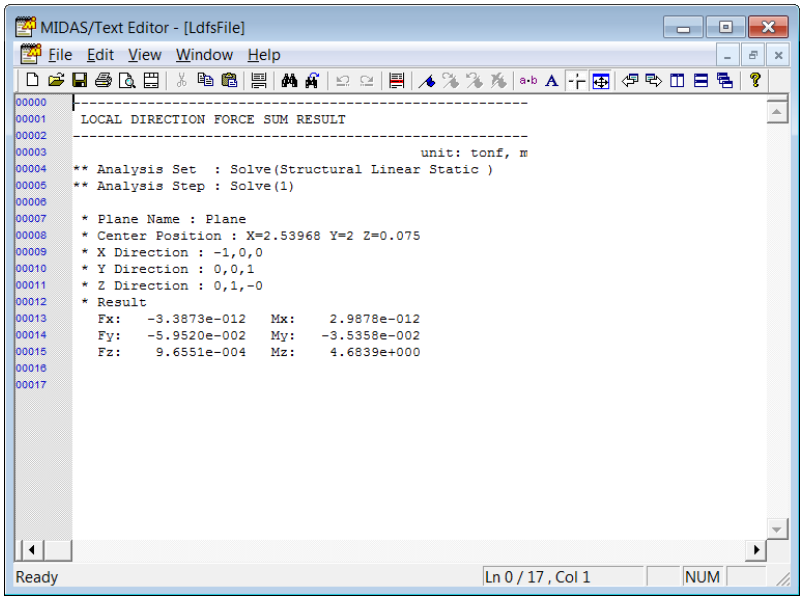
可勾選with Text輸出文字檔



選擇中央剖面


Add Defined Plane
Name
Plane
Element Type
Solid
Plate
Position
Point 1
2.53968, 0, 0
Point 2
2.53968, 0, 0.15
Point 3
2.53968, 4, 0.15
OK
Cancel
Add




MIDAS/Text Editor - [LdfsFile]
File Edit View Window Help
LOCAL DIRECTION FORCE SUM RESULT
unit: tonf, m
** Analysis Set : Solve(Structural Linear Static)
** Analysis Step : Solve(1)
* Plane Name : Plane
* Center Position : X=2.53968 Y=2 Z=0.075
* X Direction : -1,0,0
* Y Direction : 0,0,1
* Z Direction : 0,1,-0
* Result
Fx: -3.3873e-012 Mx: 2.9878e-012
Fy: -5.9520e-002 My: -3.5358e-002
Fz: 9.6551e-004 Mz: 4.6839e+000
Ready
Ln 0 / 17 , Col 1
NUM

結果驗算：

Material => Concrete E=2e6 tf/m2; density=2.5 tf/m3; Poisson=0.2

Dimensions => length L=5m; width b=4m; thickness t=15cm

Load => self-weight (-Z) set to z = -1.

Calculated : Moment Result in middle section:

M=(density)*(b*t)*(length)^2 / 8 = 2.5*(4*0.15)*5^2/8 = 4.6875 tf.m

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00001   LOCAL DIRECTION FORCE SUM RESULT
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00005  ** Analysis Step : Solve(1)
00006
00007   * Plane Name : Plane
00008   * Center Position : X=2.53968 Y=2 Z=0.075
00009   * X Direction : -1,0,0
00010   * Y Direction : 0,0,1
00011   * Z Direction : 0,1,-0
00012   * Result
00013     Fx:    -3.3873e-012    Mx:     2.9878e-012
00014     Fy:    -5.9520e-002    My:    -3.5358e-002
00015     Fz:     9.6551e-004    Mz:     4.6839e+000
00016
00017
```