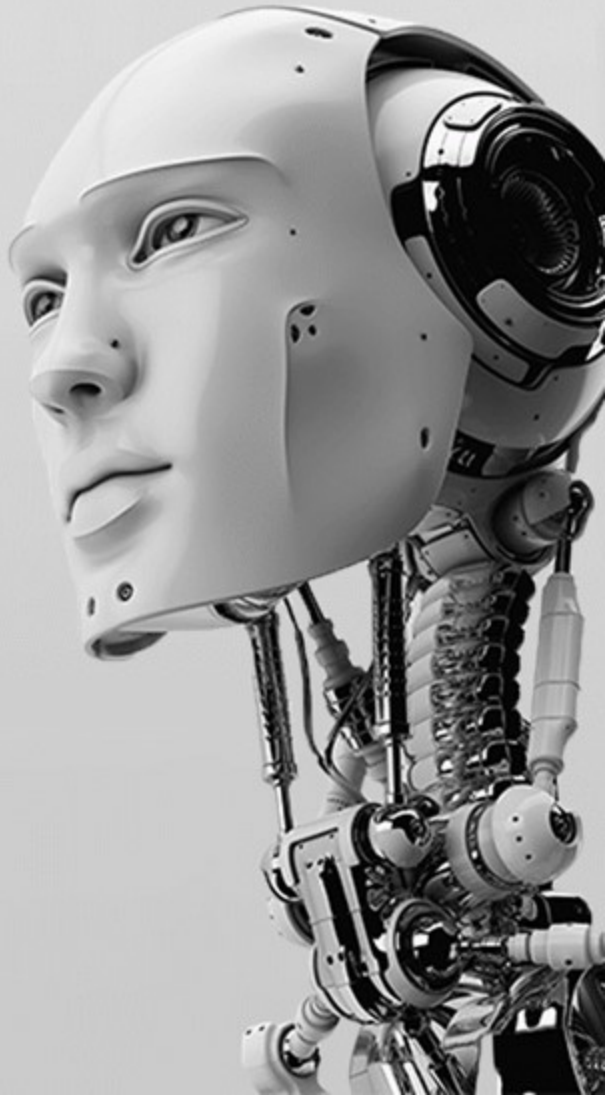
BİAS MÜHENDİSLİK

Yenilikçiler için Çözümler

Solutions for Innovators

scConverter (Data mapping)

Bias Mühendislik
Mevlüt Ahmet Kozanoğlu



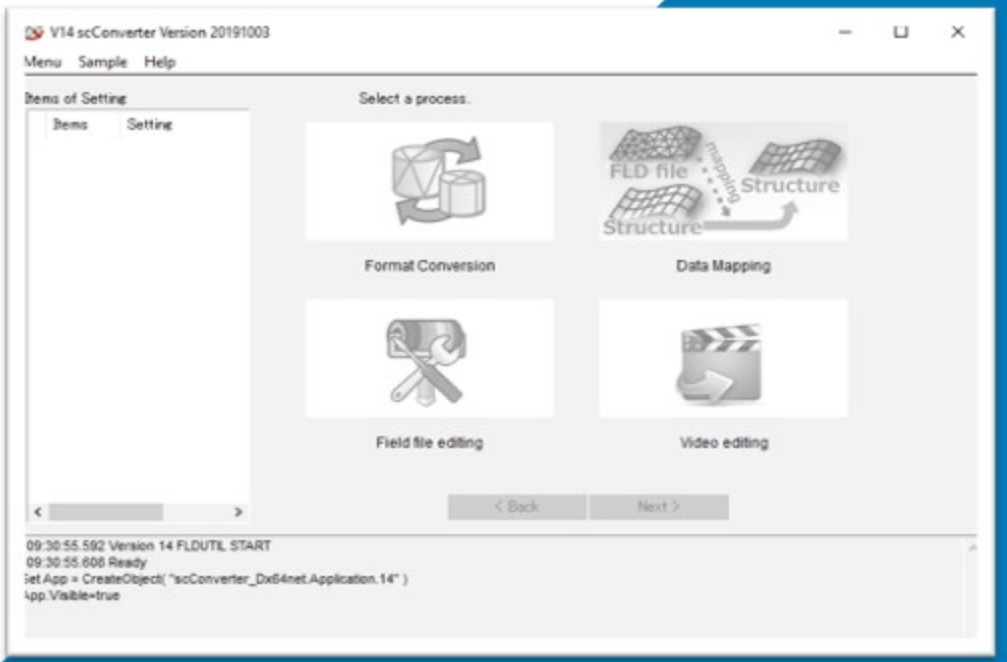
www.bias.com.tr

scConverter

- scConverter is an integrated application that can perform format conversion, mapping, field file editing and video editing.

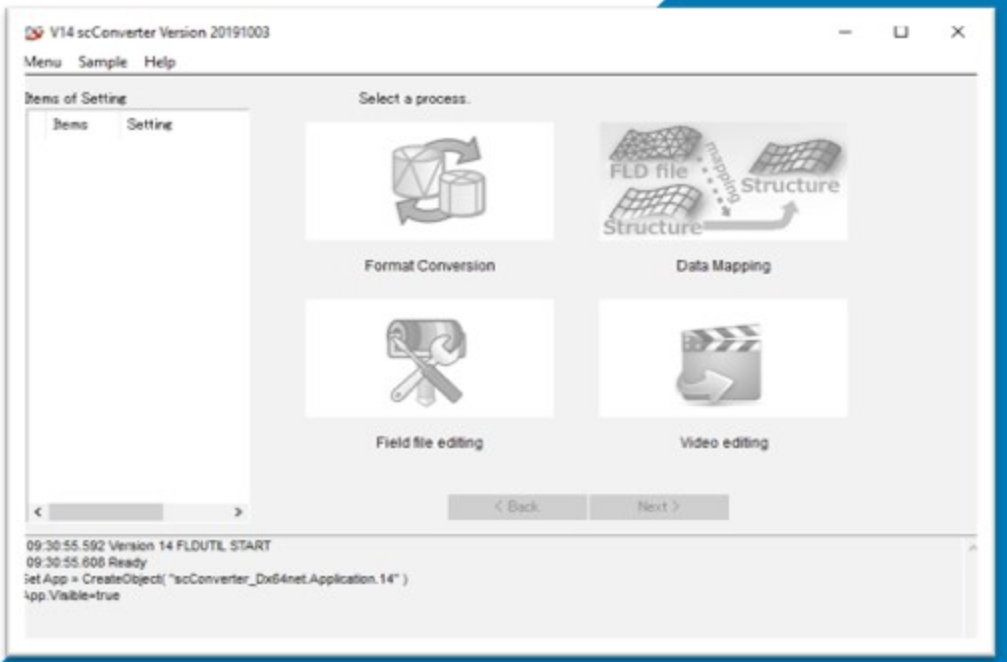
- Single precision and double precision versions are prepared for scConverter. There are the differences depending on functions. Mapping function will be examined in this report.

- Mapping:The precision of writing is precision of the read structure file. FLD files used for mapping are considered single precision.



scConverter

- scConverter is compatible with the following input data file formats.
- NASTRAN Input Data(.nas, .bdf)
- Abaqus Input Data (.inp)
- Universal file (.unv)
- When scConverter started, the application as shown on side starts.

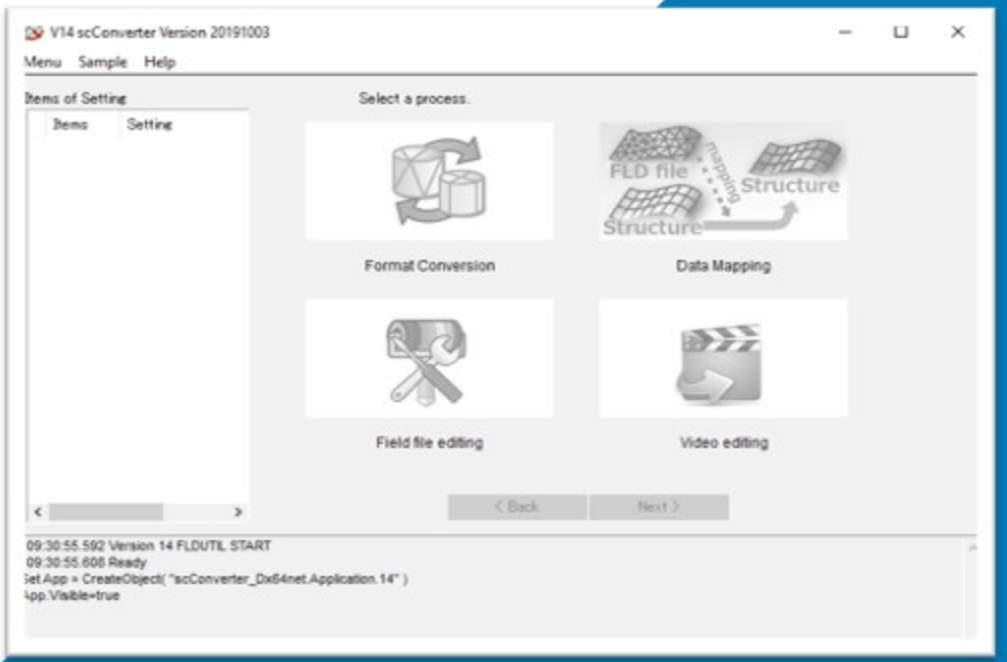


BİAS MÜHENDİSLİK

scConverter

- There are four function as seen, data mapping will be examined.

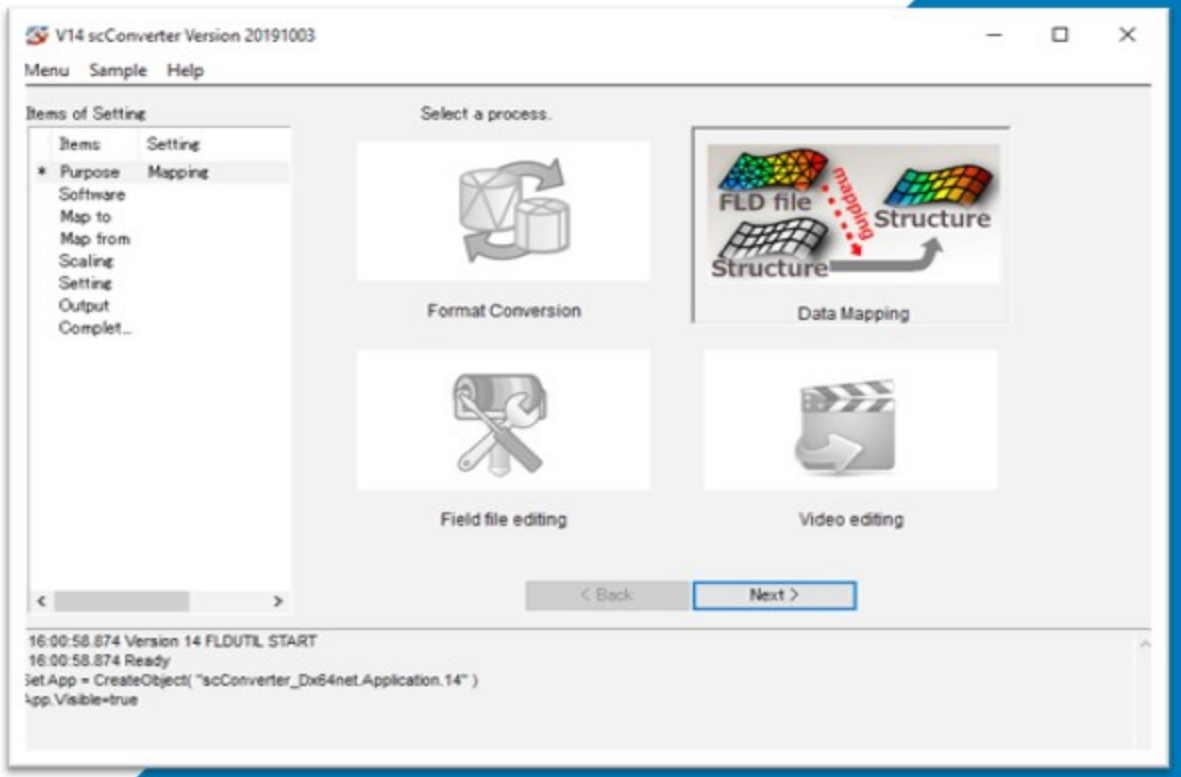
- Using data mapping it can be mapped cfd solutions to structural mesh in order to obtain more realistic results.



DATA MAPPING

- To use mapping function of scConverter, start up the application, click the [data mapping] icon as shown on side, and click next.

- Mapping function of scConverter is a program that maps results of analyses using Cradle's solver, e.g. pressure, temperature and heat transfer coefficient, onto input files of structural analysis software such as NASTRAN, I-DEAS, and Abaqus.



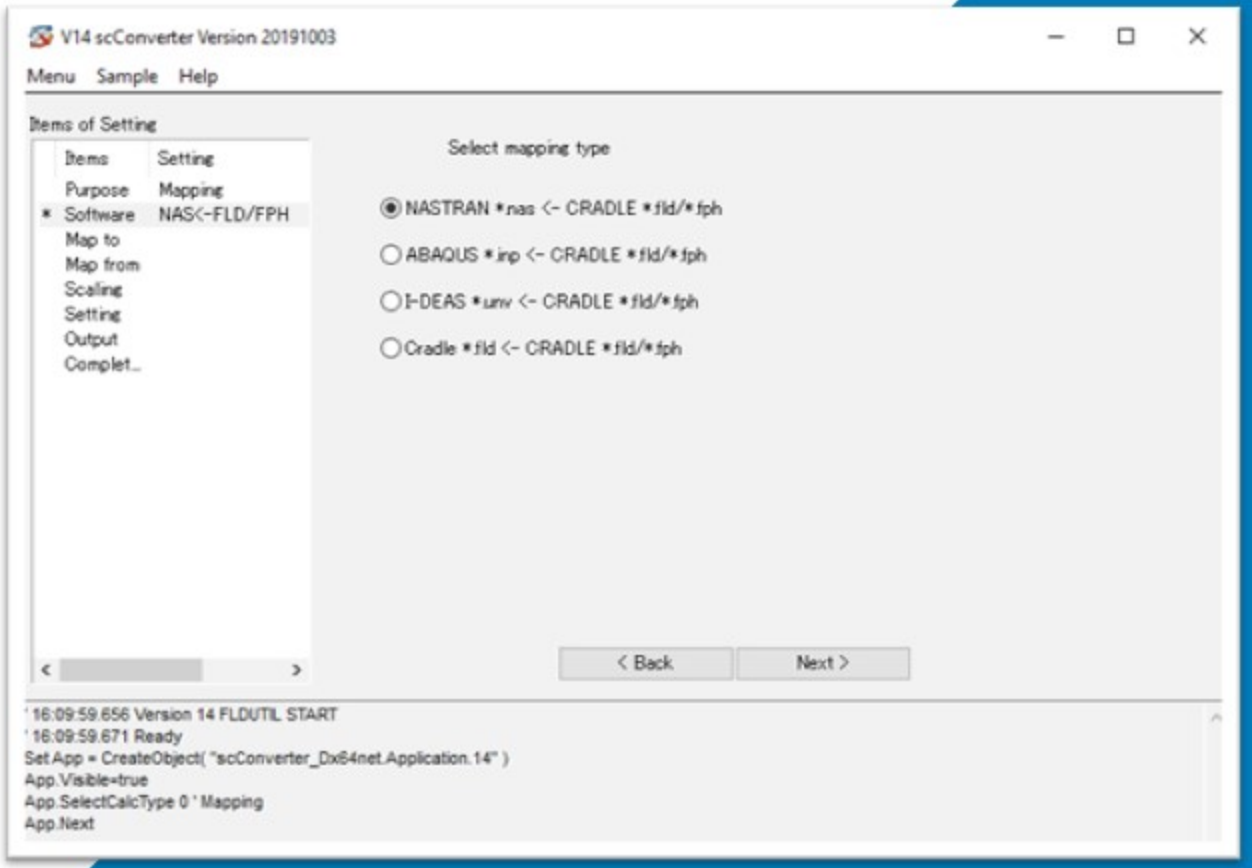
HOW TO MAP

- For a mapping from FLD file to structural analysis file such as NASTRAN file, FLD file is called “mapping source”, and structural analysis file is called “mapping destination”.
- Here is the mapping procedure. Mappings are set with the following flow:

BİAS MÜHENDİSLİK

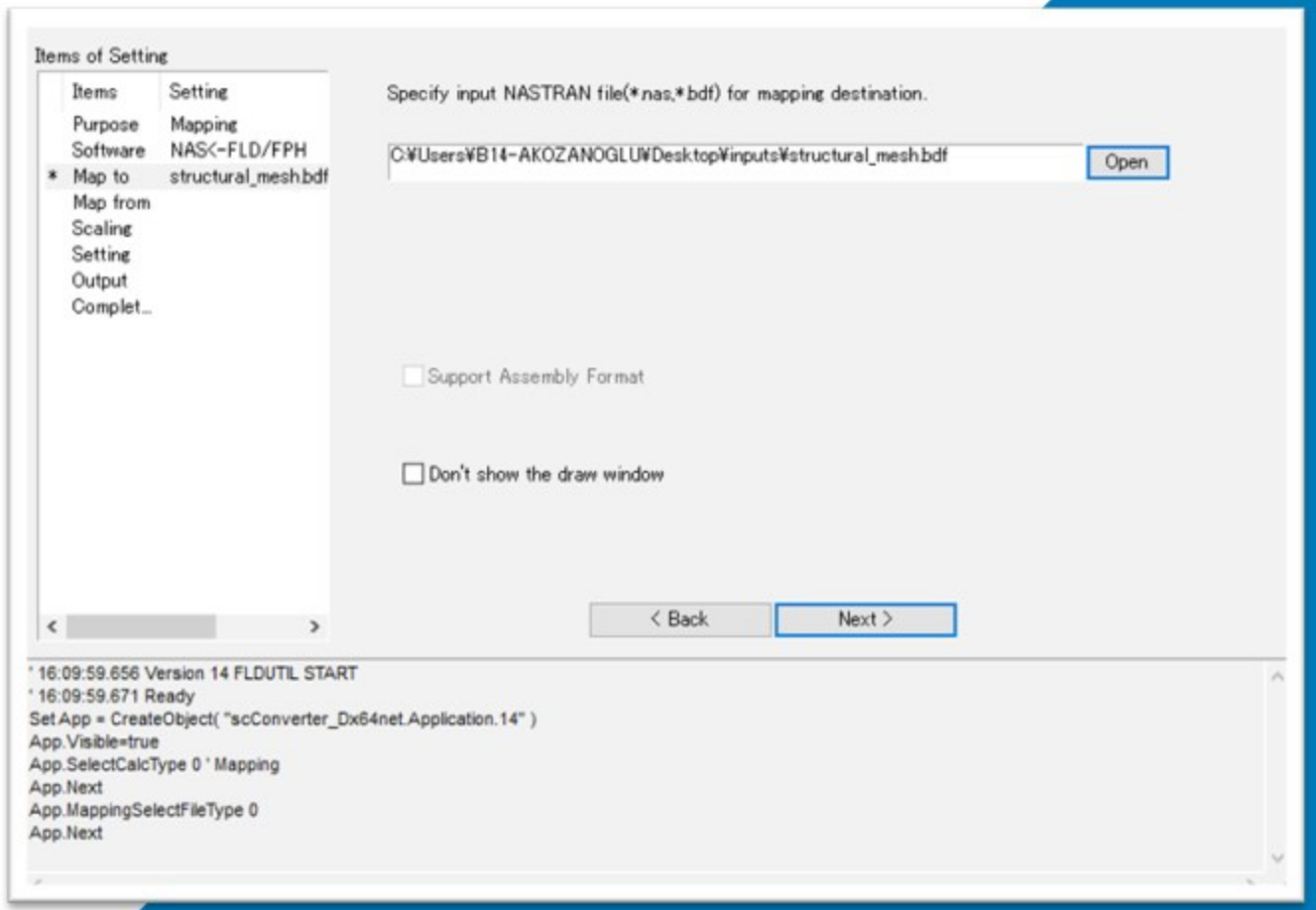
TYPE

- Select structural analysis software for mapping. The types of mappings that can be selected are as shown. We use NASTRAN's mapping to nas file as an example.



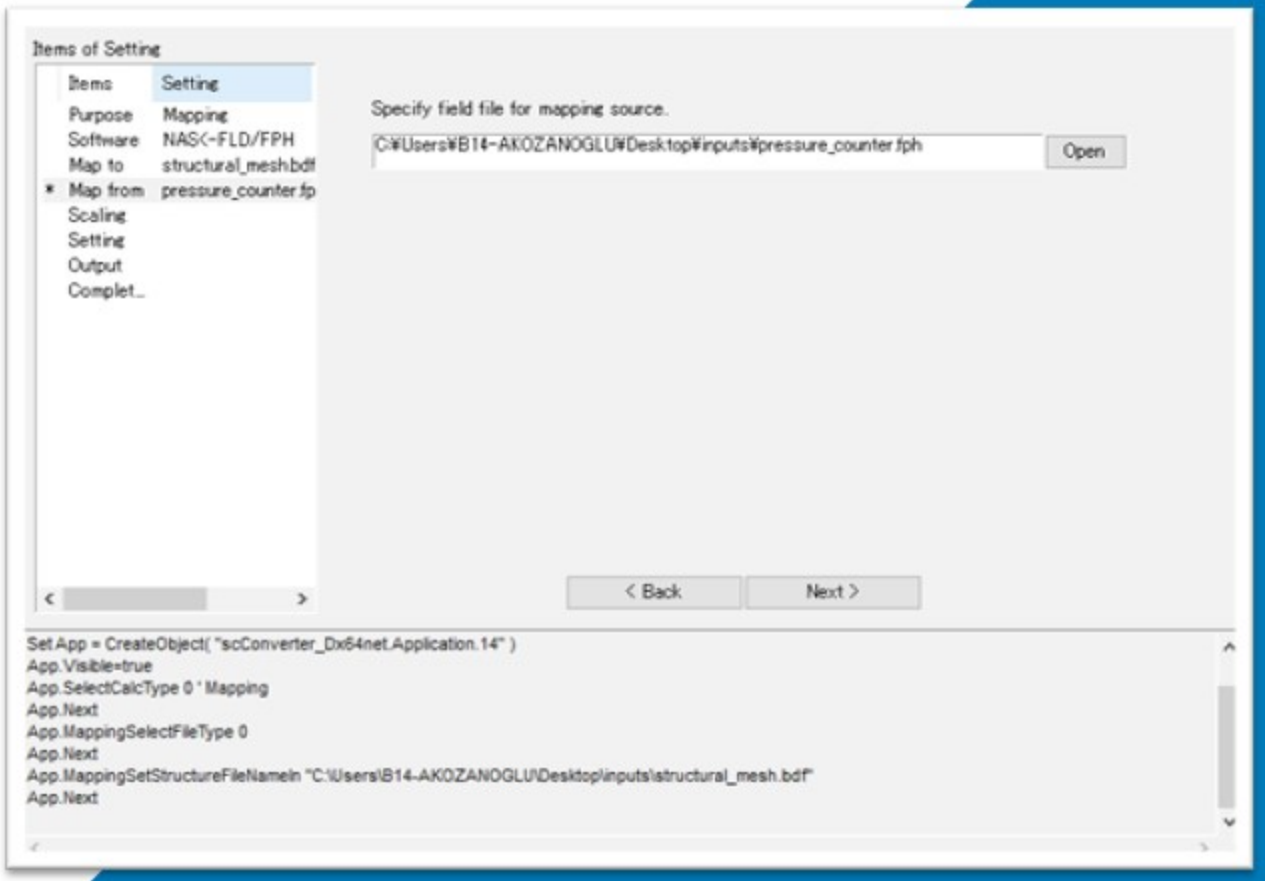
MAP TO

- Specify mapping destination (structural analysis) file.



MAP FROM

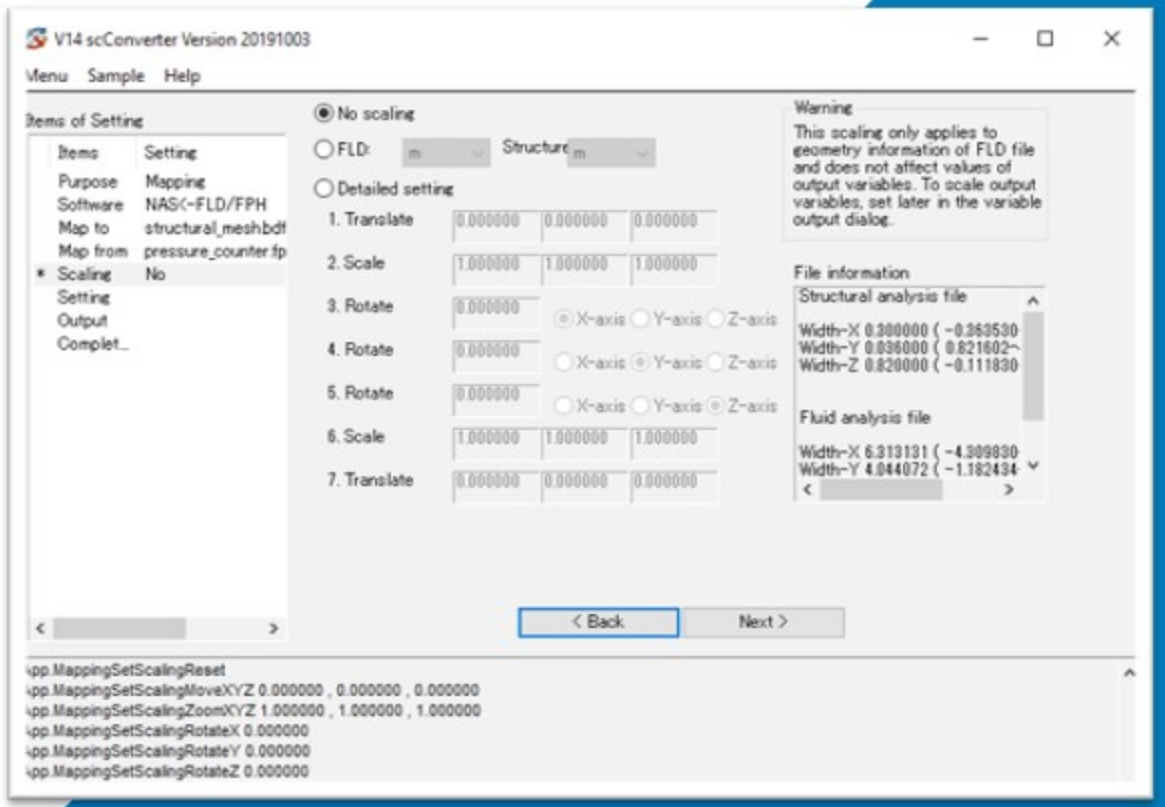
- Specify the FLD file to use for mapping.



SCALING

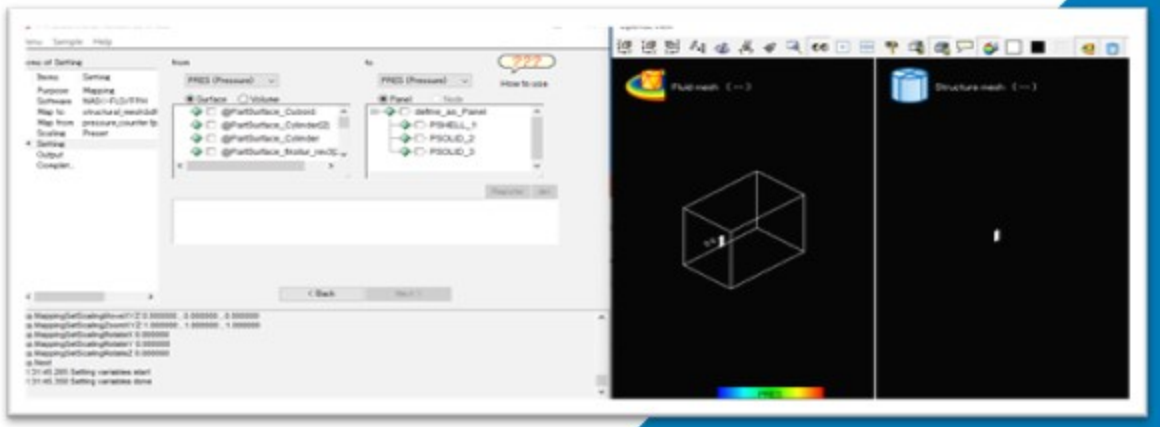
- Scaling setting is necessary when unit systems are different between mapping source and destination files.

- Scaling only influences coordinates of nodes and does not influence values of variables.

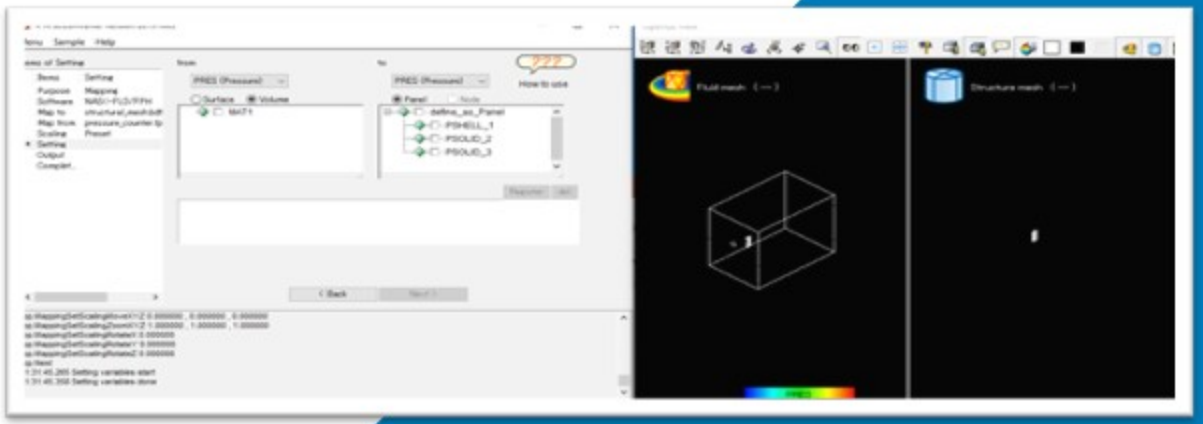


REGIONS

- When PRES(Pressure) icon is selected, OpenGL view window opens as shown below.

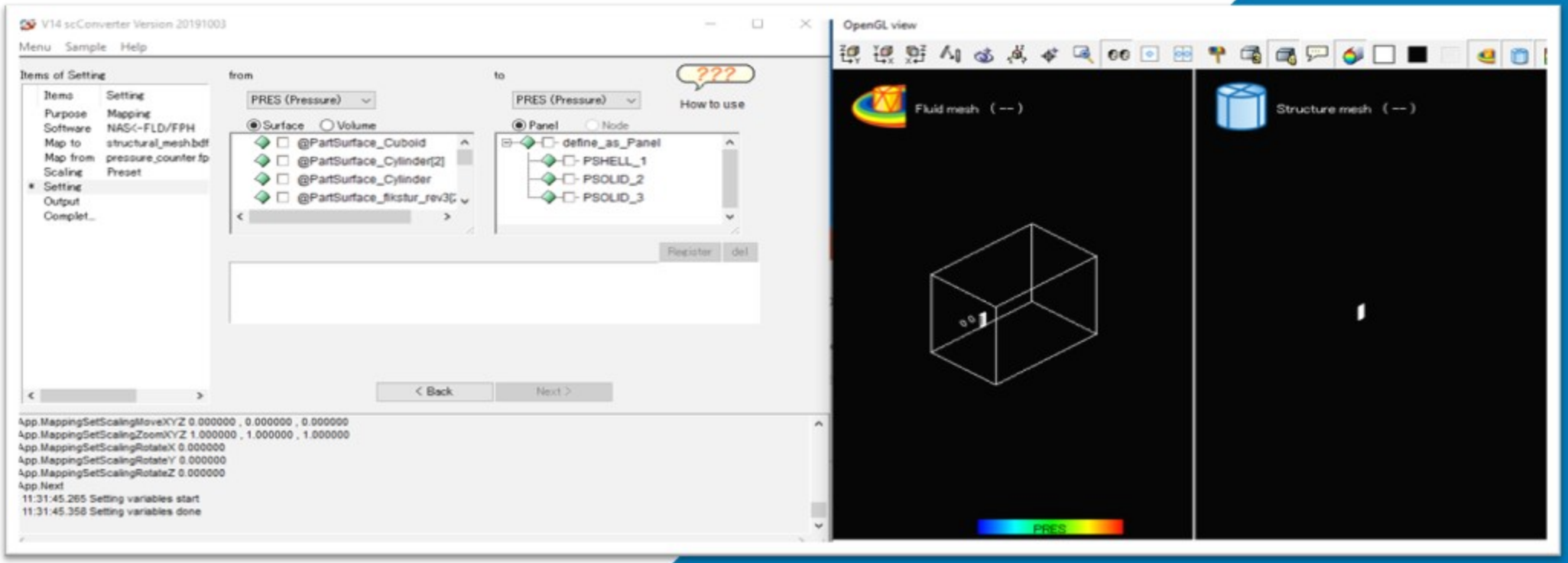


- After these procedure select volume option, after that click MAT1 and PSHELL_1 or MAT1 and PSOLID_2, PSOLID_3.



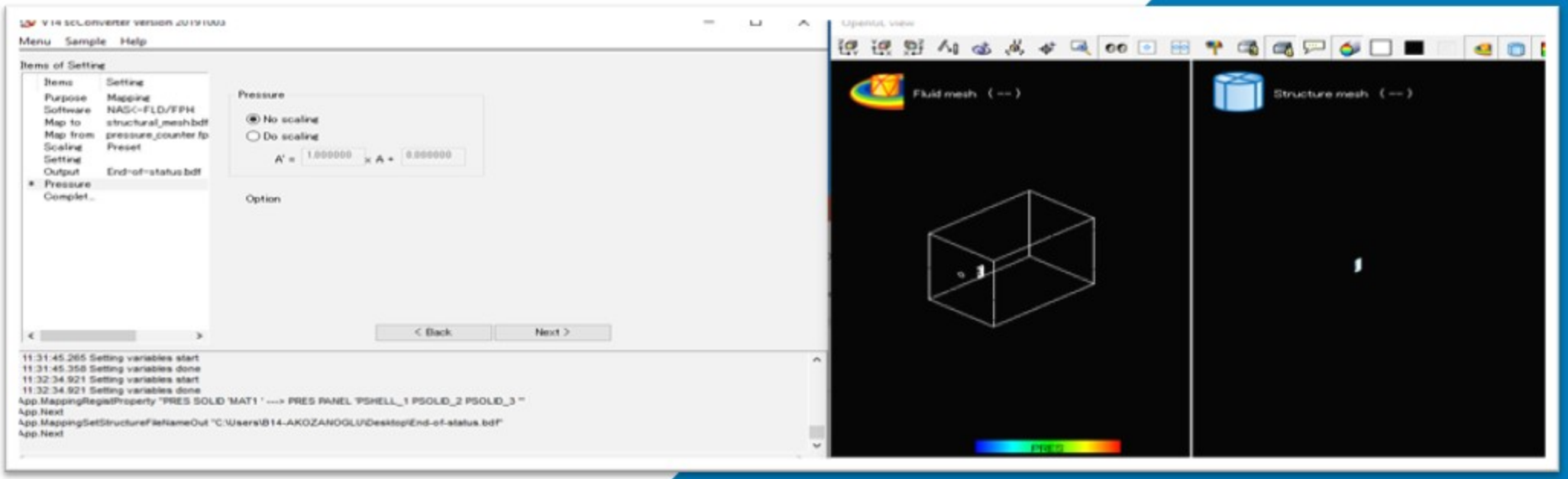
WRITE

- Specify name of file to be saved.



VARIABLES

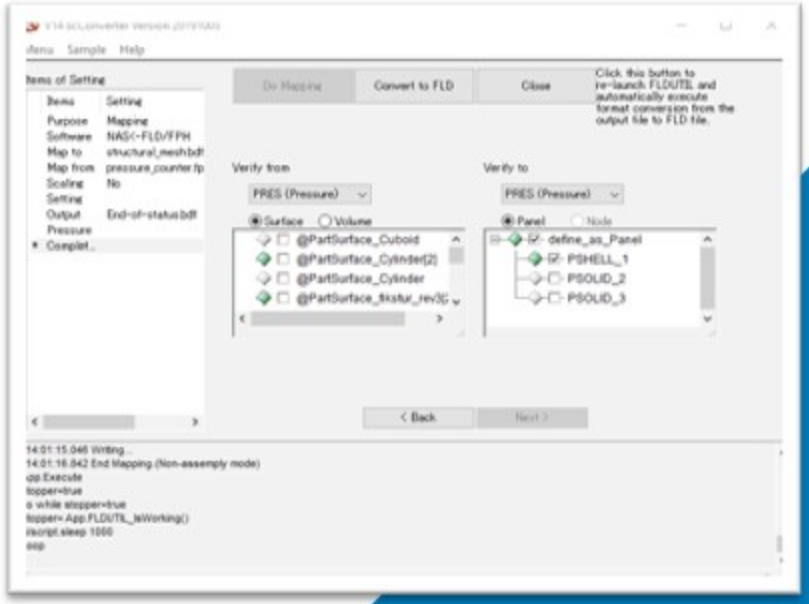
- Set scaling for output variables. Dialogs open only for the variables that are output. The setting is done by specifying values for P and Q in equation: $A^{\wedge}{}' = PA + Q$, where A and $A^{\wedge}{}'$ are the variables before and after scaling.

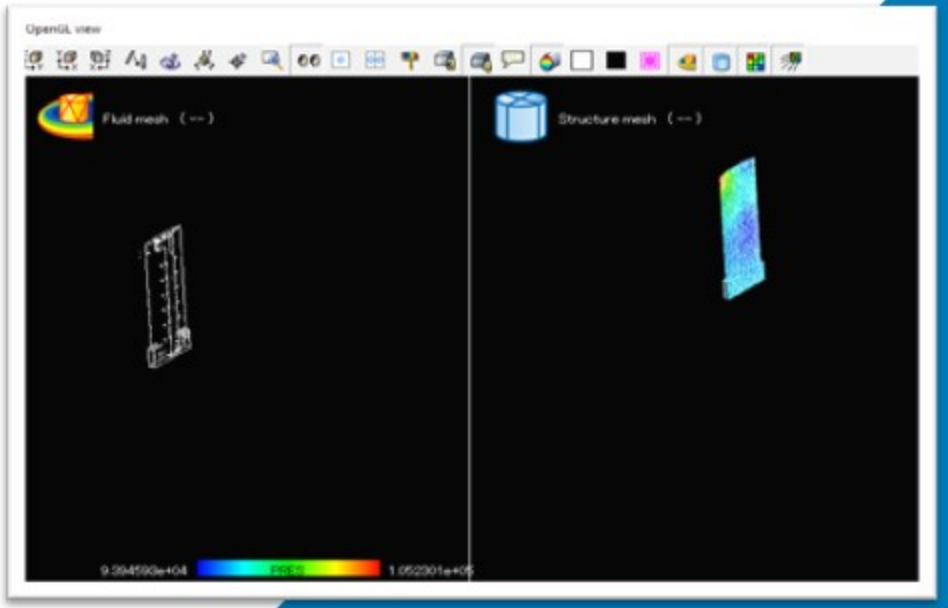


BİAS MÜHENDİSLİK

EXECUTE

- Click [Do Mapping] to perform mapping. The result is displayed in the counter diagram in the right draw window.

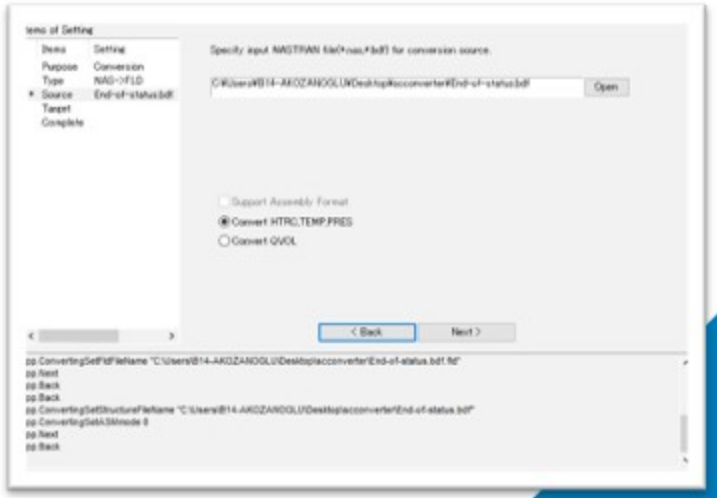


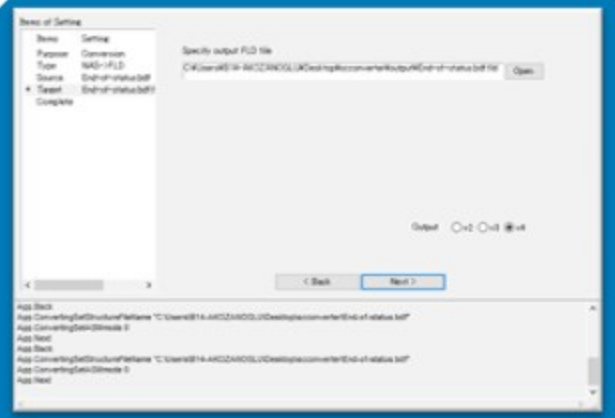


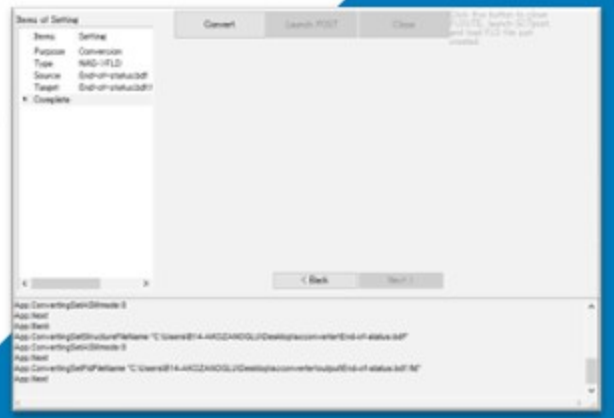
BİAS MÜHENDİSLİK

CONVERT TO FLD

- When convert to FLD is clicked, scConverter automatically restarts, automatically configures to convert the mapping result file to FLD, and the last setting dialog is displayed.
- Specify input NASTRAN file for conversion source.
- Specify output FLD file.
- Click [Convert] to convert the mapping result file to FLD.

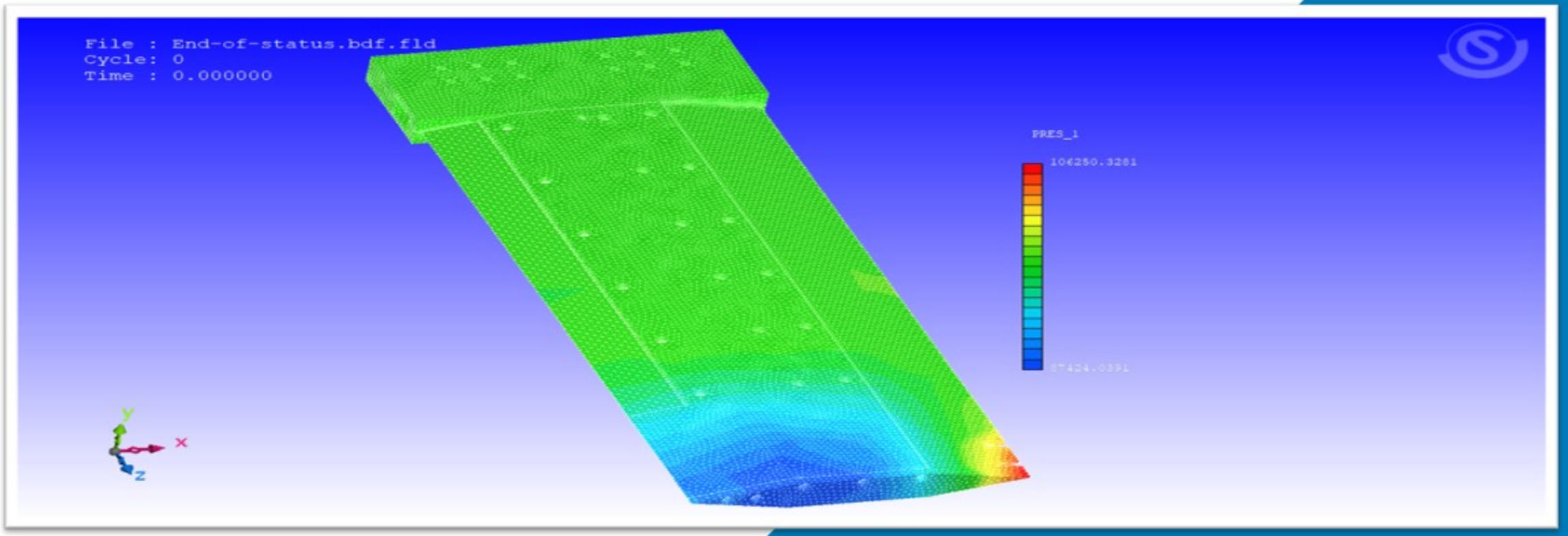






RESULT

- Launch postprocessor and display the mapping result as shown below.



RESULT

- Finite Volume Method (best for fluids), Finite Element Methods (best for structures and acoustics). When these two methods are applied together, we obtain more accurate and more realistic results.

- Capturing movement and deformation more precisely and expressing boundary conditions in fluid analysis with more reality.

- For these reason Data Mapping is quite simple and useful function for the CAE.


BİAS
MÜHENDİSLİK
Yenilikçiler için Çözümler
Solutions for Innovators
THANK YOU
www.bias.com.tr