

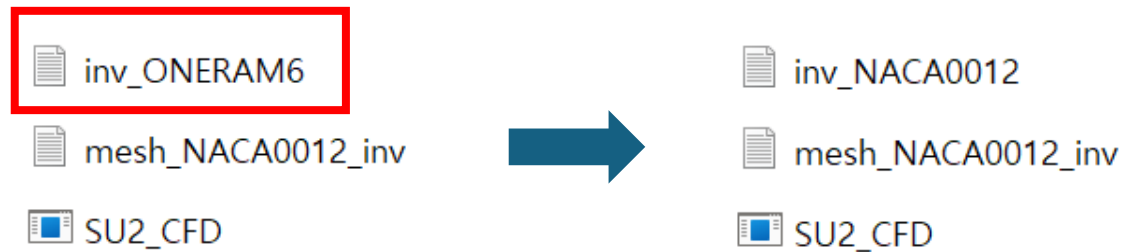
SU2 2주차 보고서

2019011579 김세형

폴더 생성

- 아래 경로의 파일을 각각 복사하여 한 폴더 안에 붙여넣기.
- 파일명 inv_ONERAM6 를 inv_NACA0012 로 변경.

file name	path
inv_ONERAM6	~\su2code-Tutorials-cccbbda\compressible_flow\Inviscid_ONERAM6
mesh_NACA0012_inv	~\su2code-TestCases-c0c2d61\Weuler\naca0012
SU2_CFD	~\SU2-v8.3.0-win64-mpi\win64-mpi\bin

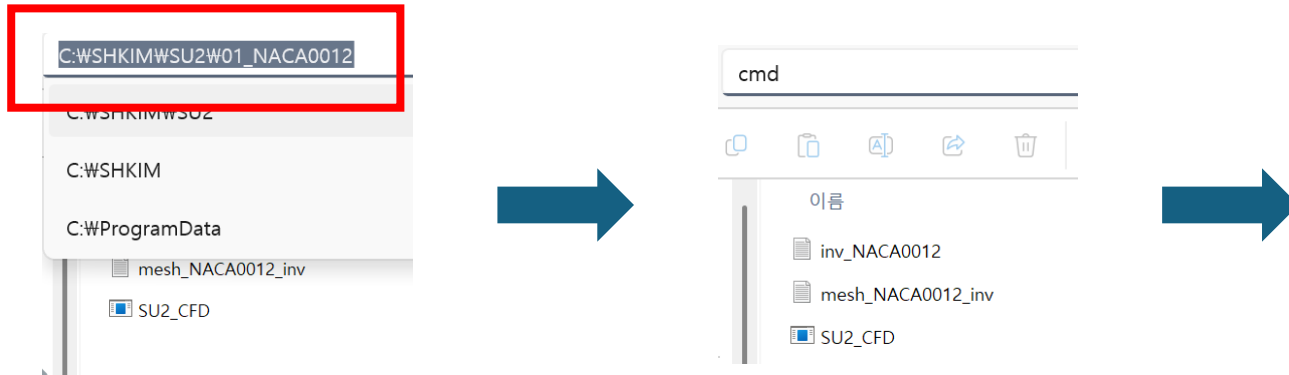


Configuration file 입력값 수정

- MACH_NUMBER= 0.75
- AOA= 3.25
- FREESTREAM_TEMPERATURE= 273.15
- MARKER_EULER= (airfoil)
- MARKER_FAR= (farfield)
- %MARKER_SYM= (SYMMETRY_FACE)
- MARKER_PLOTTING= (airfoil)
- MARKER_MONITORING= (airfoil)
- CFL_NUMBER= 50.0
- MESH_FILENAME= mesh_NACA0012_inv.su2

명령 프롬프트 실행

- Windows 파일 탐색기의 주소 탐색창을 클릭.
- 이후 cmd를 입력하고 Enter 키를 눌러 명령 프롬프트 실행.
- 명령 프롬프트 창에 다음 명령어를 입력하여 해석 수행.
- `mpiexec -n 4 SU2_CFD.exe inv_NACA0012.cfg`
- (-n 4 : 병렬 계산에 사용된 프로세서 수)



```
C:\Windows\System32\cmd +   
Microsoft Windows [Version 10.0.26100.6584]  
(c) Microsoft Corporation. All rights reserved.  
  
C:\SHKIM\SU2\01_NACA0012>mpiexec -n 4 SU2_CFD.exe inv_NACA0012.cfg  
  
-----  
|  
| / _ | | | _ _ ) Release 8.3.0 "Harrier"  
| \ _ \ | | | / /  
| | _ / _ _ // _ _ | Suite (Computational Fluid Dynamics Code)  
|  
|-----  
| SU2 Project Website: https://su2code.github.io  
|  
| The SU2 Project is maintained by the SU2 Foundation  
| (http://su2foundation.org)  
|-----  
| Copyright 2012-2025, SU2 Contributors  
|  
| SU2 is free software; you can redistribute it and/or  
| modify it under the terms of the GNU Lesser General Public  
| License as published by the Free Software Foundation; either  
| version 2.1 of the License, or (at your option) any later version.  
|  
| SU2 is distributed in the hope that it will be useful,  
| but WITHOUT ANY WARRANTY; without even the implied warranty of  
| MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU  
| Lesser General Public License for more details.  
|  
| You should have received a copy of the GNU Lesser General Public
```

해석 완료

- 해석이 완료되면 해당 폴더에 다음과 같은 파일들이 생성됨.

```
C:\Windows\System32\cmd
165| 3.6243e-02| -11.539942| -10.815341| 0.657691| 0.035163|
166| 3.6678e-02| -11.615186| -10.887506| 0.657691| 0.035163|
167| 3.7137e-02| -11.698934| -10.968162| 0.657691| 0.035163|
168| 3.7552e-02| -11.795554| -11.061827| 0.657691| 0.035163|
169| 3.7978e-02| -11.905080| -11.167985| 0.657691| 0.035163|
170| 3.8393e-02| -12.021210| -11.283689| 0.657691| 0.035163|

----- Solver Exit -----
All convergence criteria satisfied.
+-----+-----+-----+-----+
| Convergence Field | Value | Criterion | Converged |
+-----+-----+-----+-----+
| rms[Rho] | -12.0212 | < -12 | Yes |
+-----+-----+-----+-----+








+-----+-----+
| File Writing Summary | Filename |
+-----+-----+
| SU2 binary restart | restart_flow.dat |
| Paraview | flow.vtu |
| Paraview surface | surface_flow.vtu |
+-----+-----+

----- Finalizing Solver -----
Deleted CNumerics container.
Deleted CIntegration container.
Deleted CSolver container.
Deleted CIteration container.
Deleted CInterface container.
Deleted CGeometry container.
Deleted CFreeFormDefBox class.
Deleted CSurfaceMovement class.
Deleted CVolumetricMovement class.
Deleted CConfig container.
Deleted nInst container.
Deleted COutput class.

----- Exit Success (SU2_CFD) -----

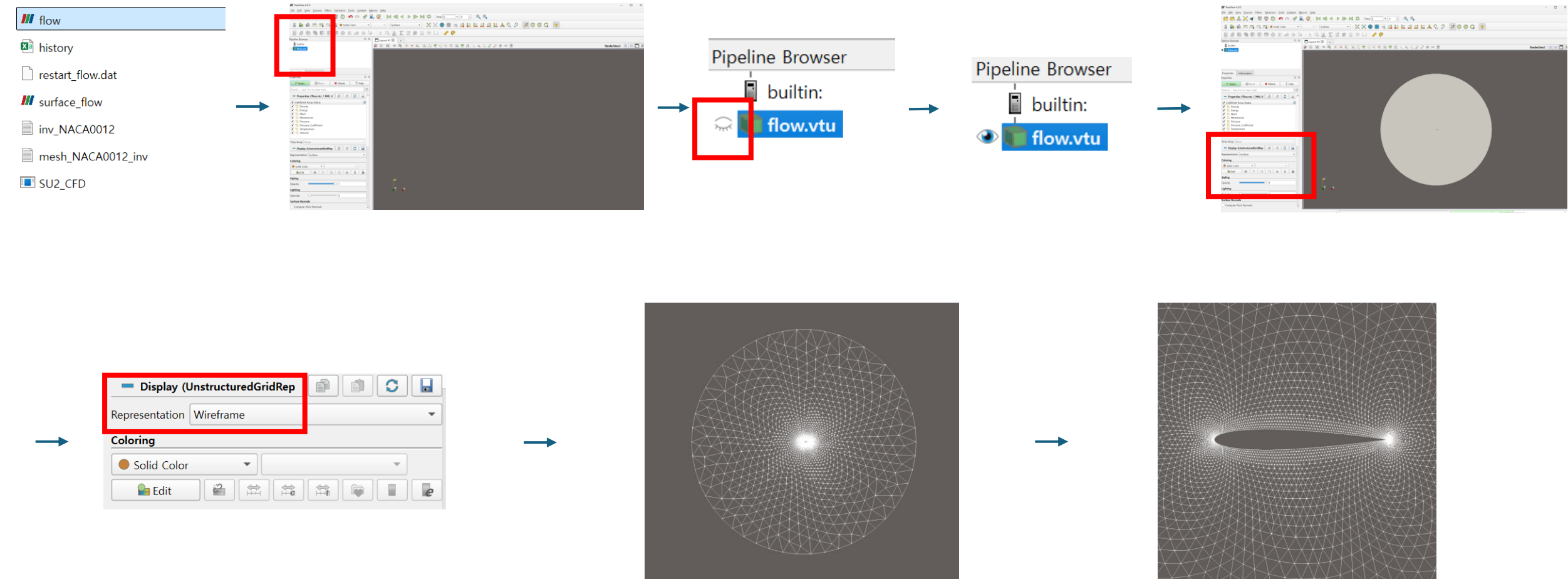
C:\SHKIM\SU2\01_NACA0012>
```



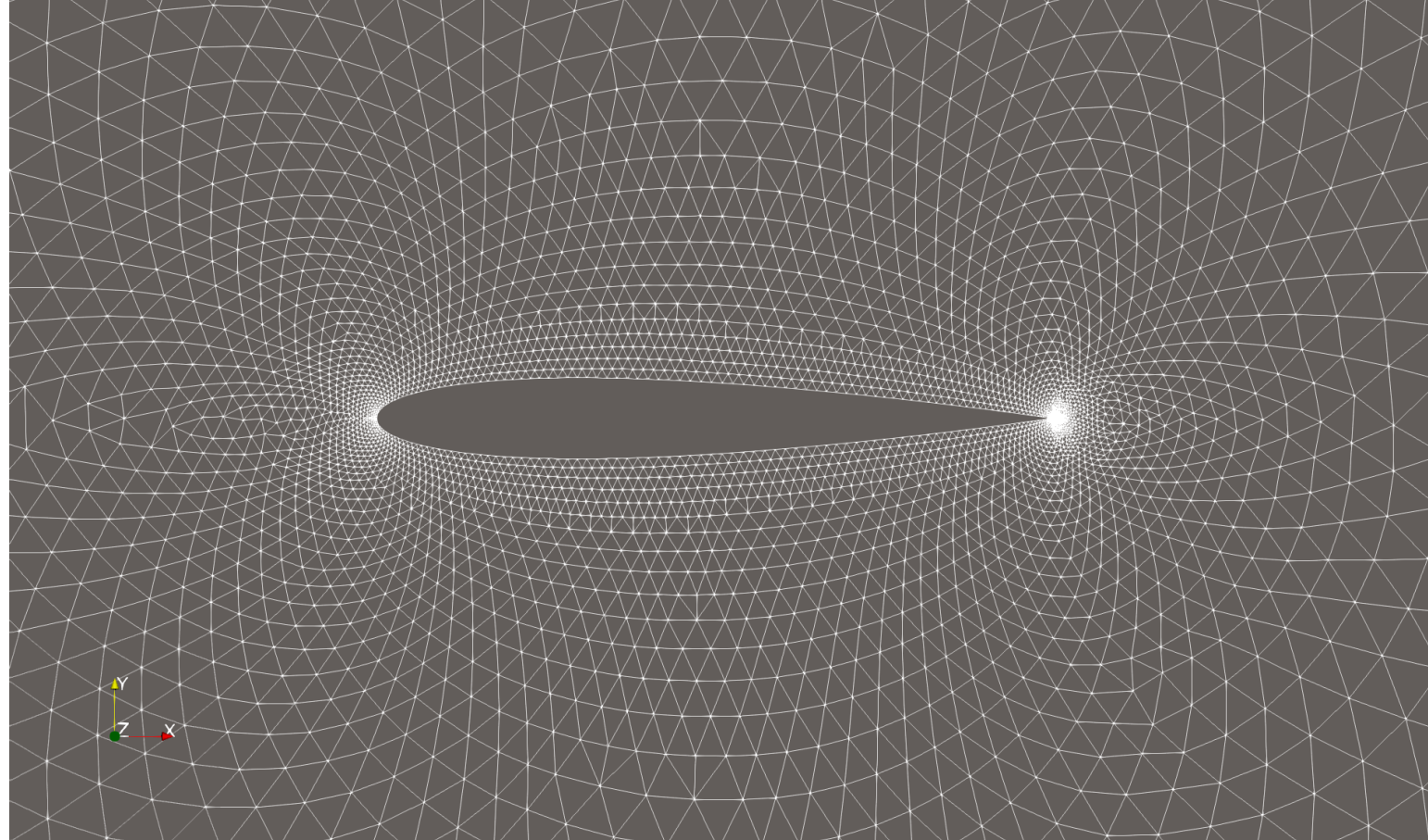
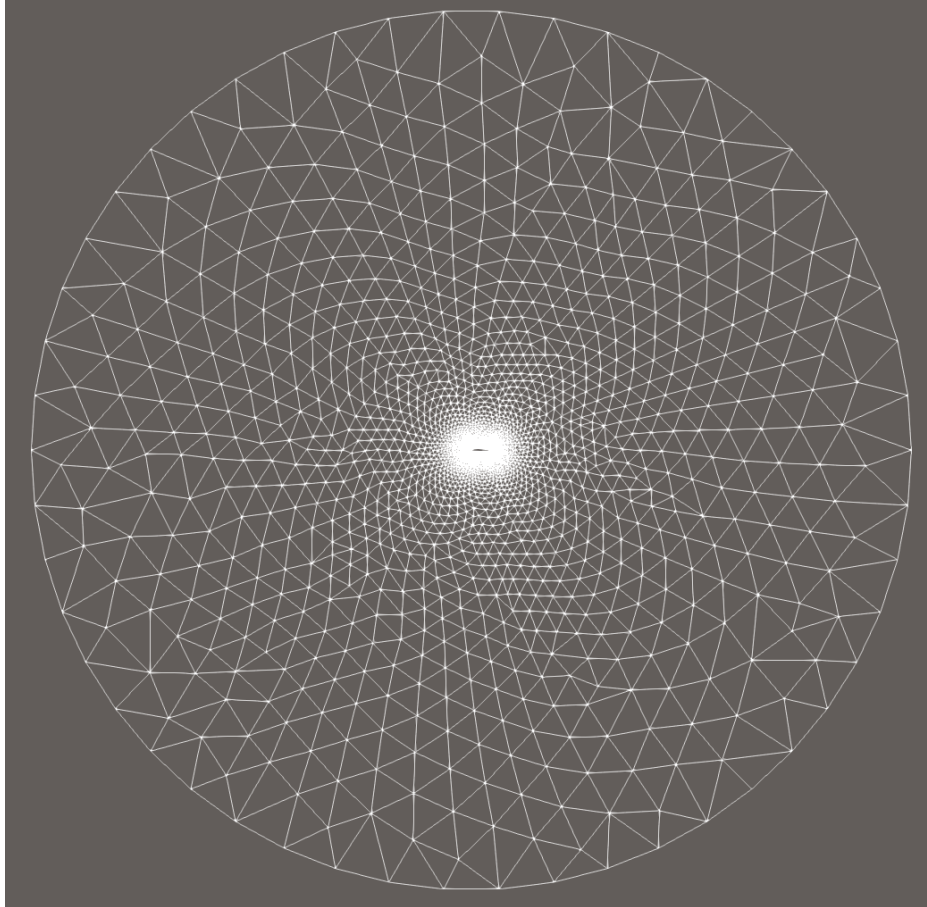
-  flow
-  history
-  restart_flow.dat
-  surface_flow
-  inv_NACA0012
-  mesh_NACA0012_inv
-  SU2_CFD

Mesh

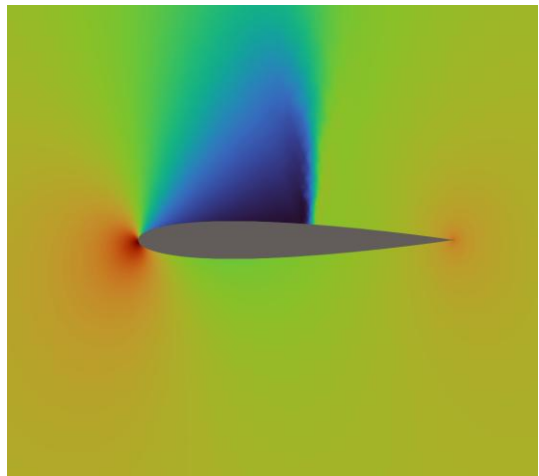
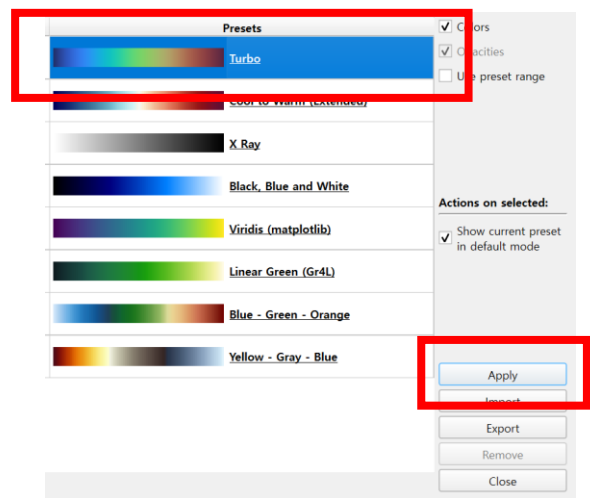
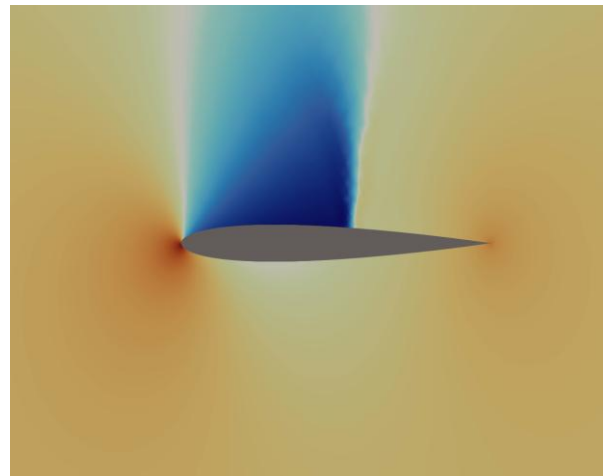
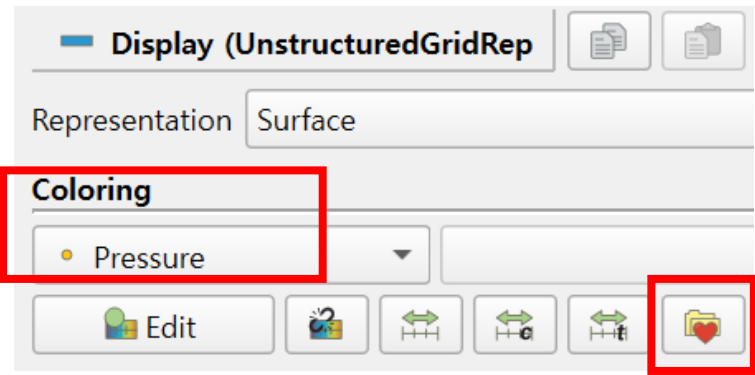
- 다음의 순서를 통해 격자 생성.



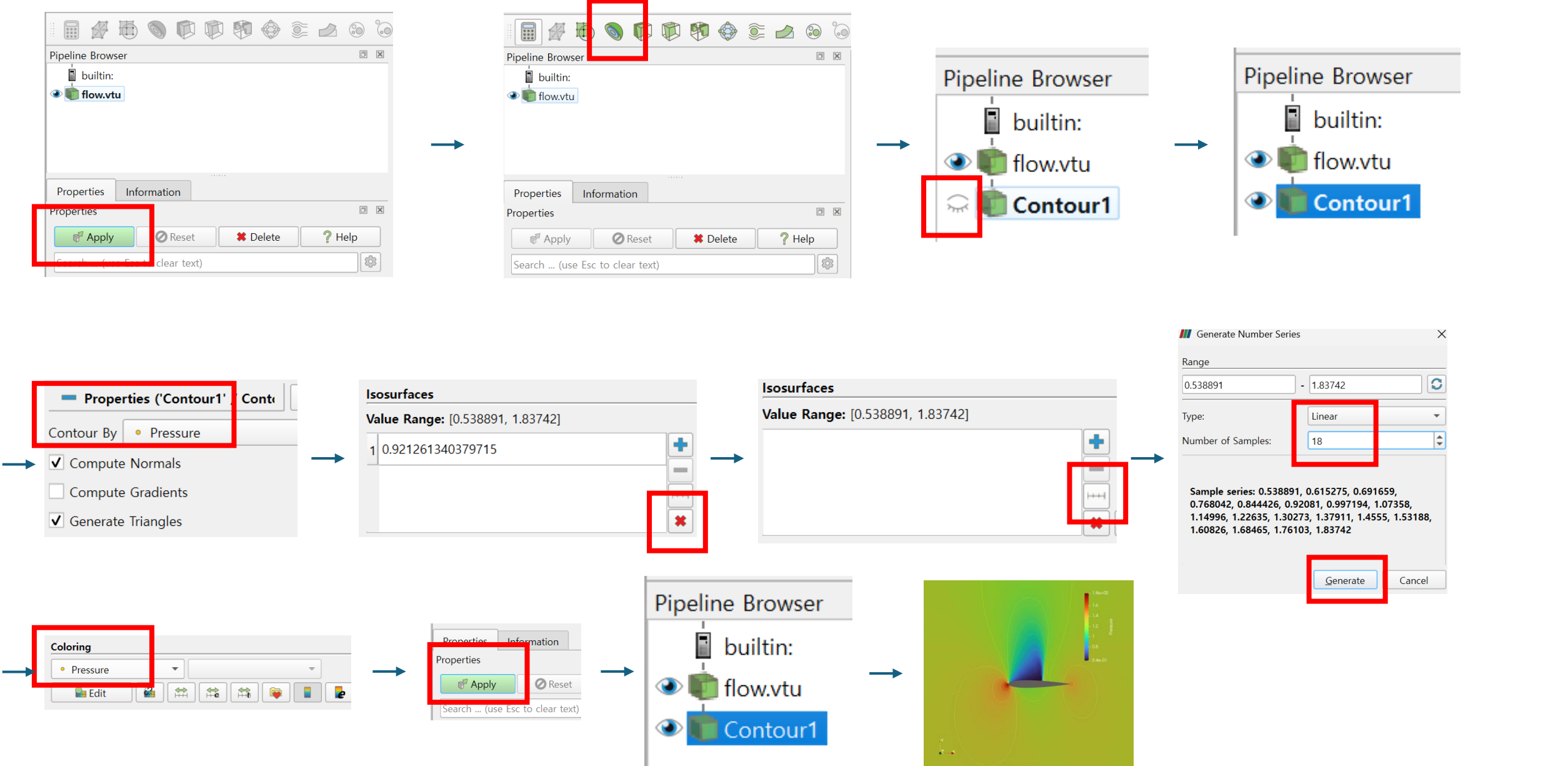
Mesh



Pressure

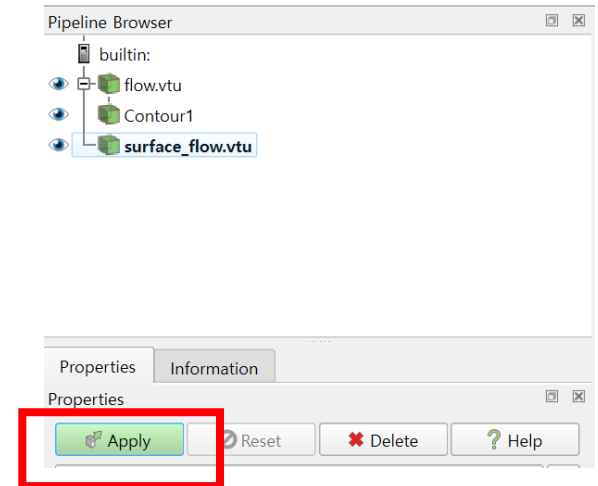
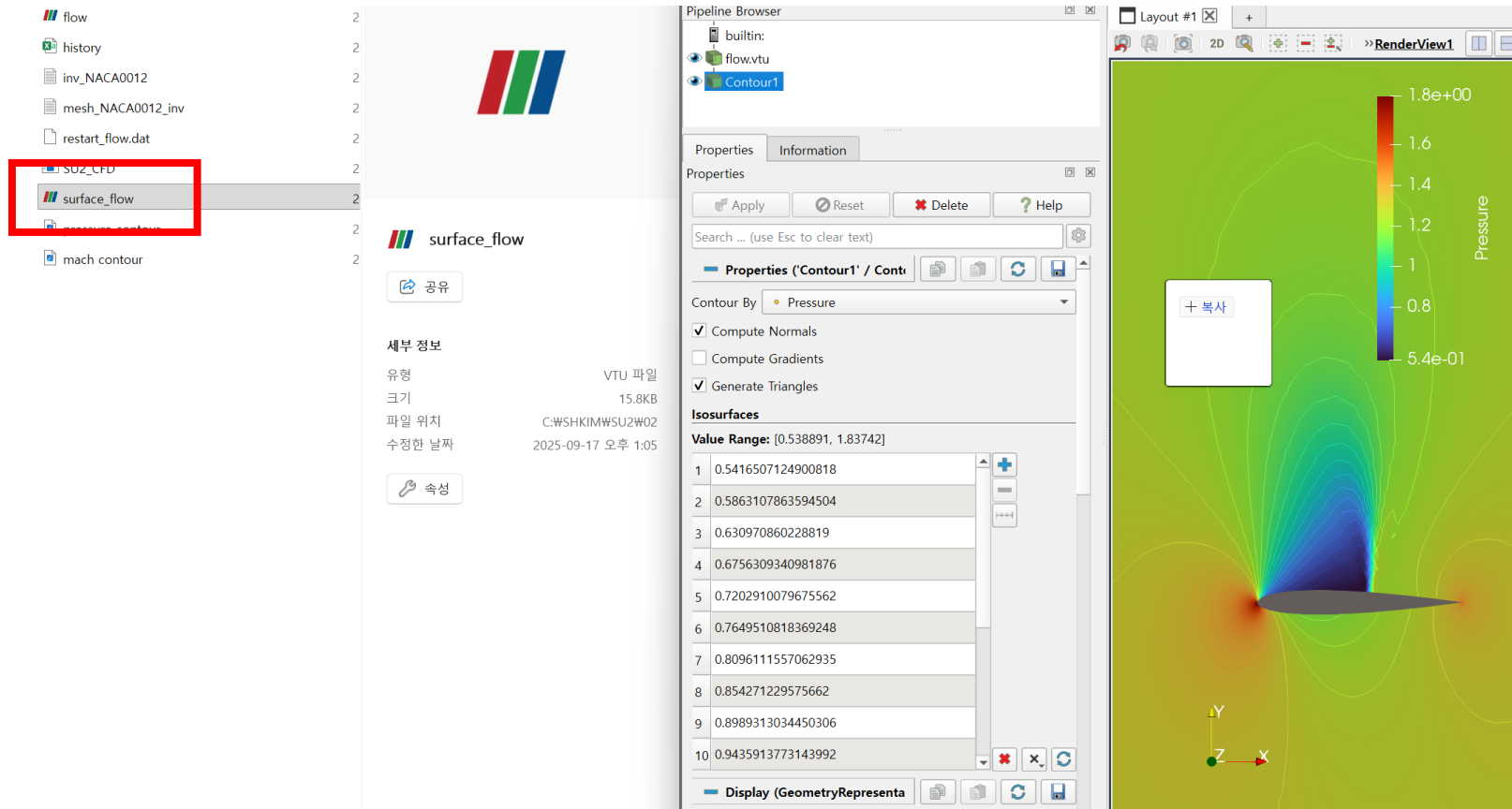


Pressure

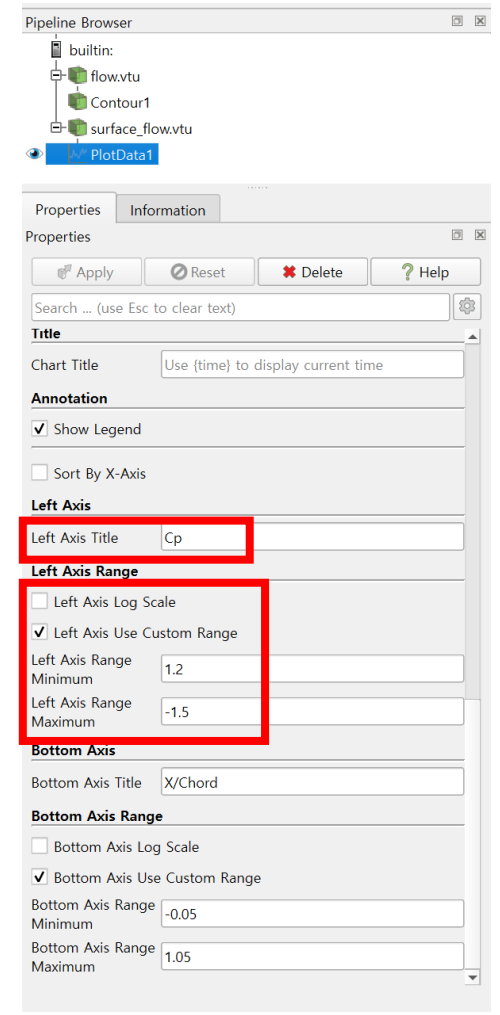
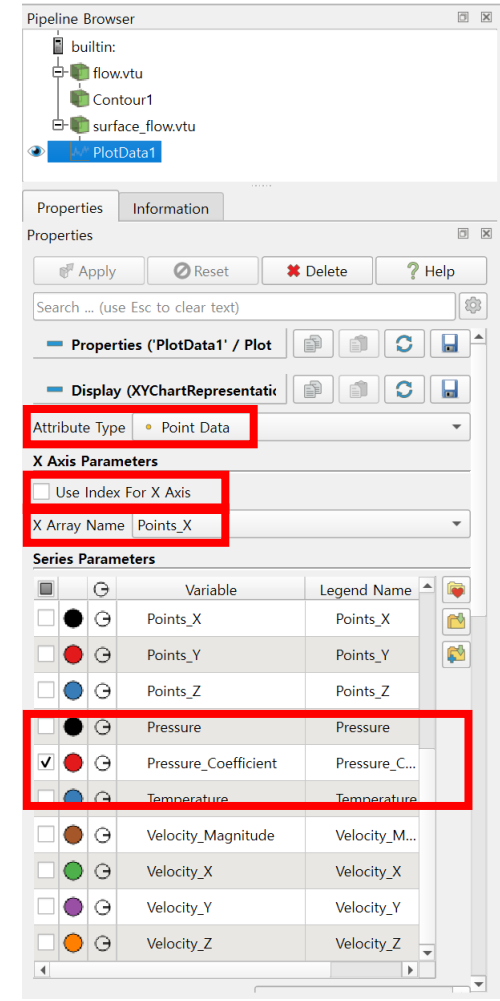
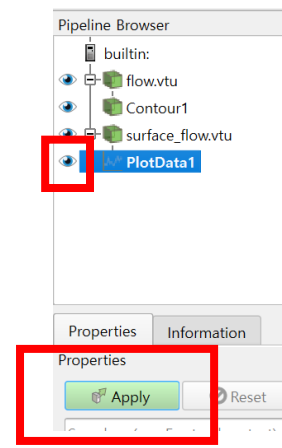
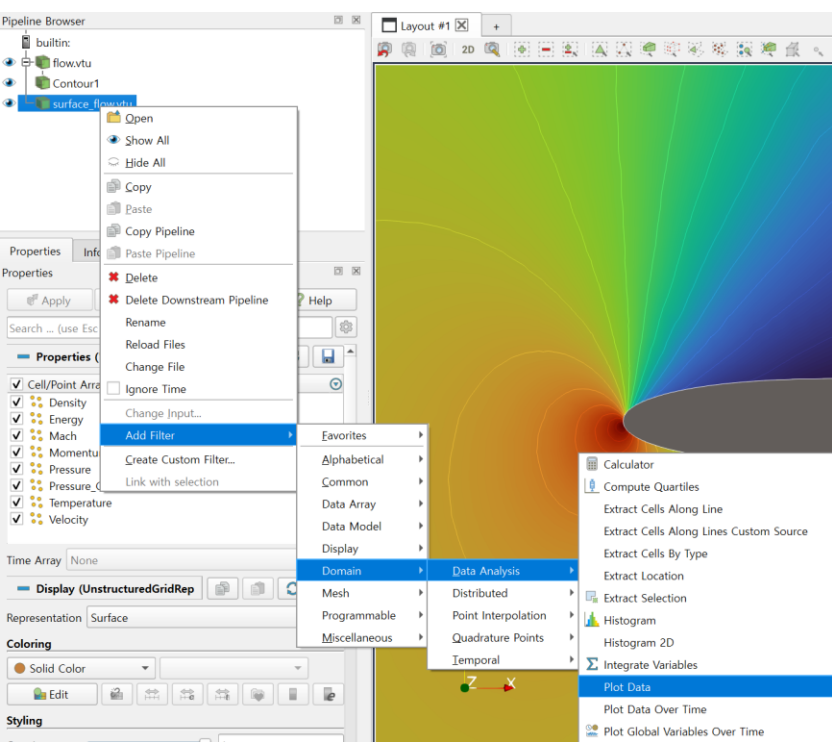


Pressure

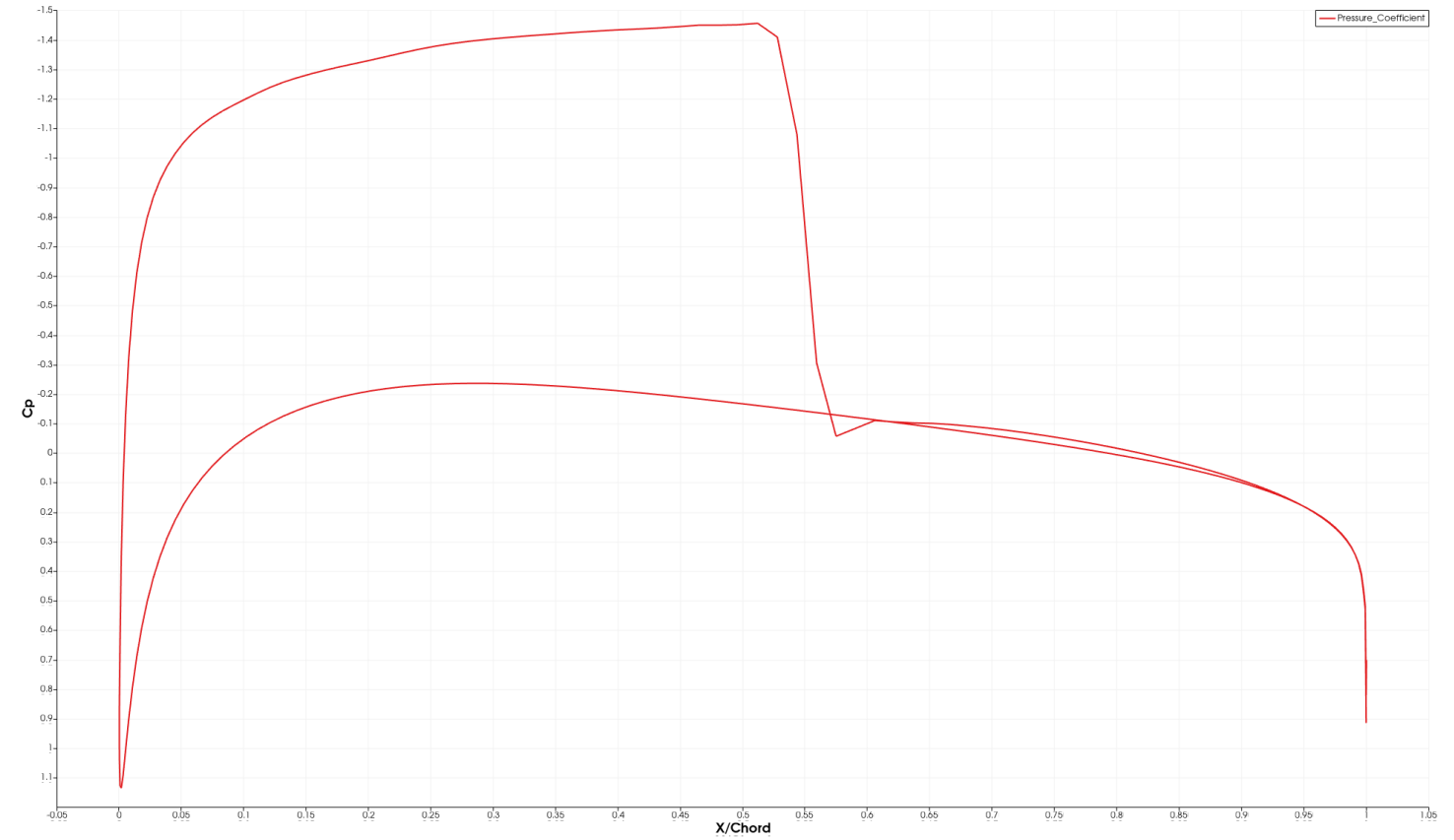
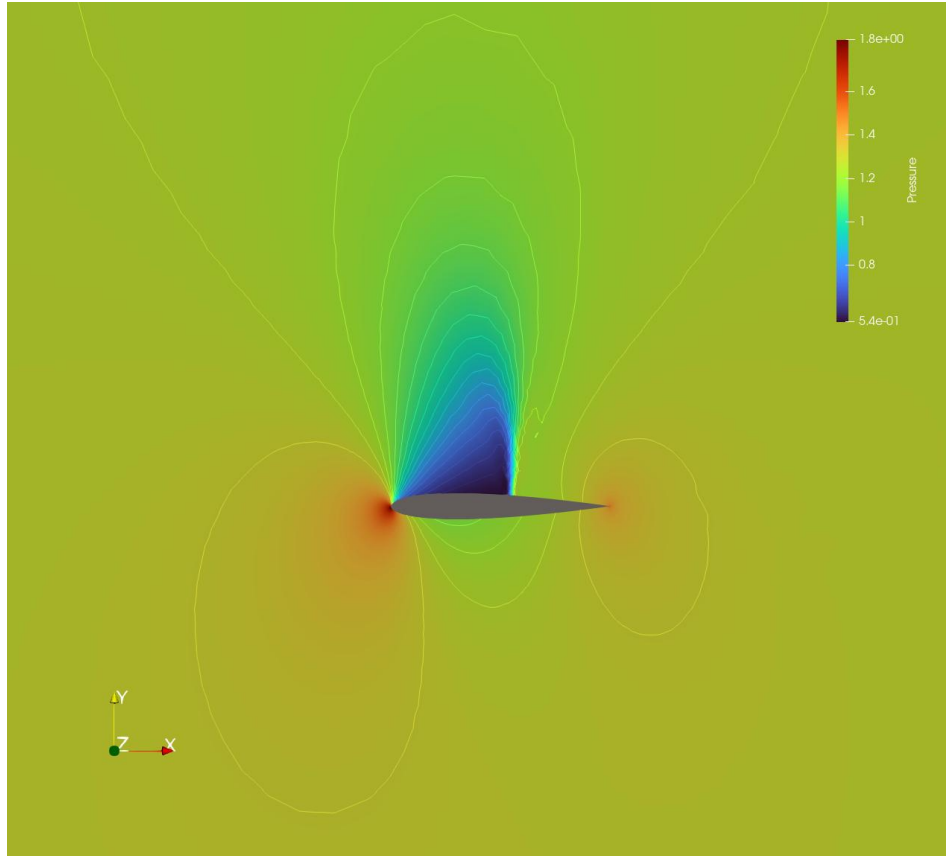
- “surface_flow” 파일을 실행되고 있는 “flow” 에 drag and drop.
- 이후 Apply



Pressure



Pressure



Mach

- Pressure_Coefficient 의 데이터를 Plot 하는 과정과 유사.

Coloring

Mach

Edit

Properties ('Contour1' /

Contour By

Mach

☒ Compute Normals

Display (XYChartRepresentati

Attribute Type

Point Data

X Axis Parameters

☐ Use Index For X Axis

X Array Name

Points_X

Series Parameters

		Variable	Legend Name
<input type="checkbox"/>		Density	Density
<input type="checkbox"/>		Energy	Energy
<input checked="" type="checkbox"/>		Mach	Mach

Generate Number Series

Range

0.541651

 -

1.30087

Type:

Linear

Number of Samples:

18

Sample series: 0.541651, 0.586311, 0.630971, 0.675631, 0.720291, 0.764951, 0.809611, 0.854271, 0.898931, 0.943591, 0.988251, 1.03291, 1.07757, 1.12223, 1.16689, 1.21155, 1.25621, 1.30087

Generate

Cancel

Left Axis

Left Axis Title

Mach

Left Axis Range

☐ Left Axis Log Scale

☒ Left Axis Use Custom Range

Left Axis Range Minimum

1.5

Left Axis Range Maximum

-1.5

Bottom Axis

Bottom Axis Title

X/Chord

Bottom Axis Range

☐ Bottom Axis Log Scale

☒ Bottom Axis Use Custom Range

Bottom Axis Range Minimum

-0.05

Bottom Axis Range Maximum

1.05

Mach

