

# CFD-ACE+

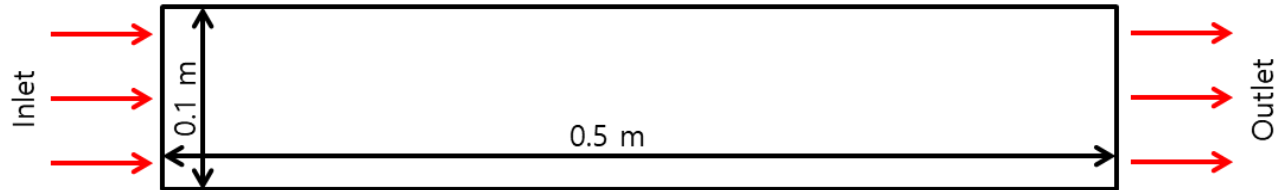
## Parametric Study 설정

- **Objective**

- 다양한 변수에 관한 해석을 편리하게 진행하기 위한 설정 방법

- **Geometry**

- 0.1 m X 0.5 m Channel
- Inlet을 통해 유입되는 내부 유동 해석

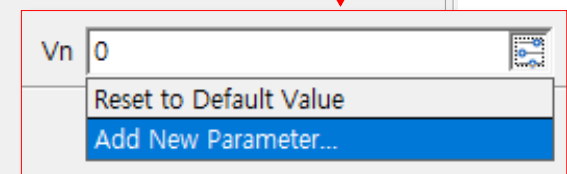
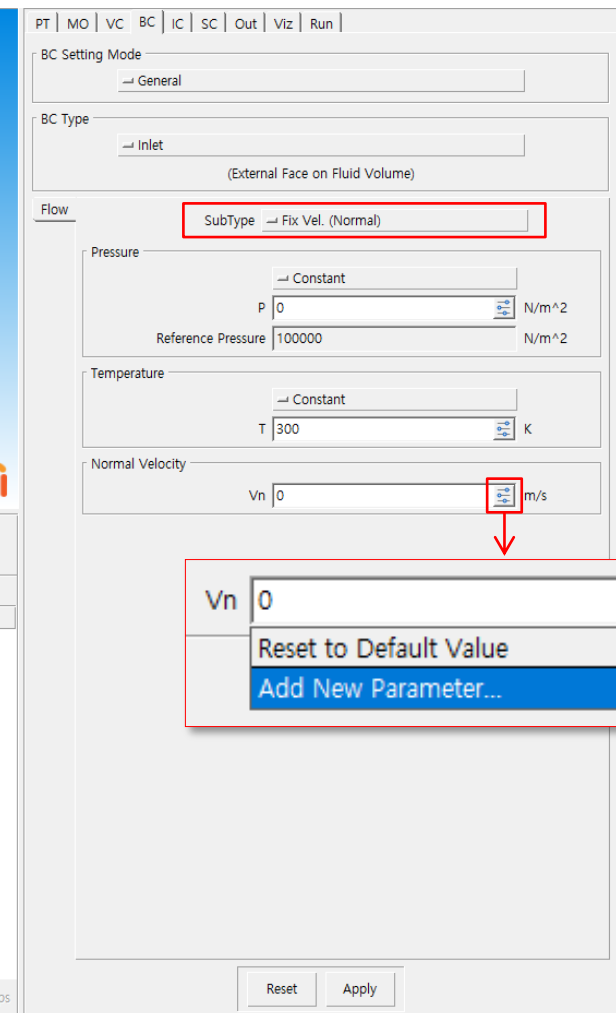
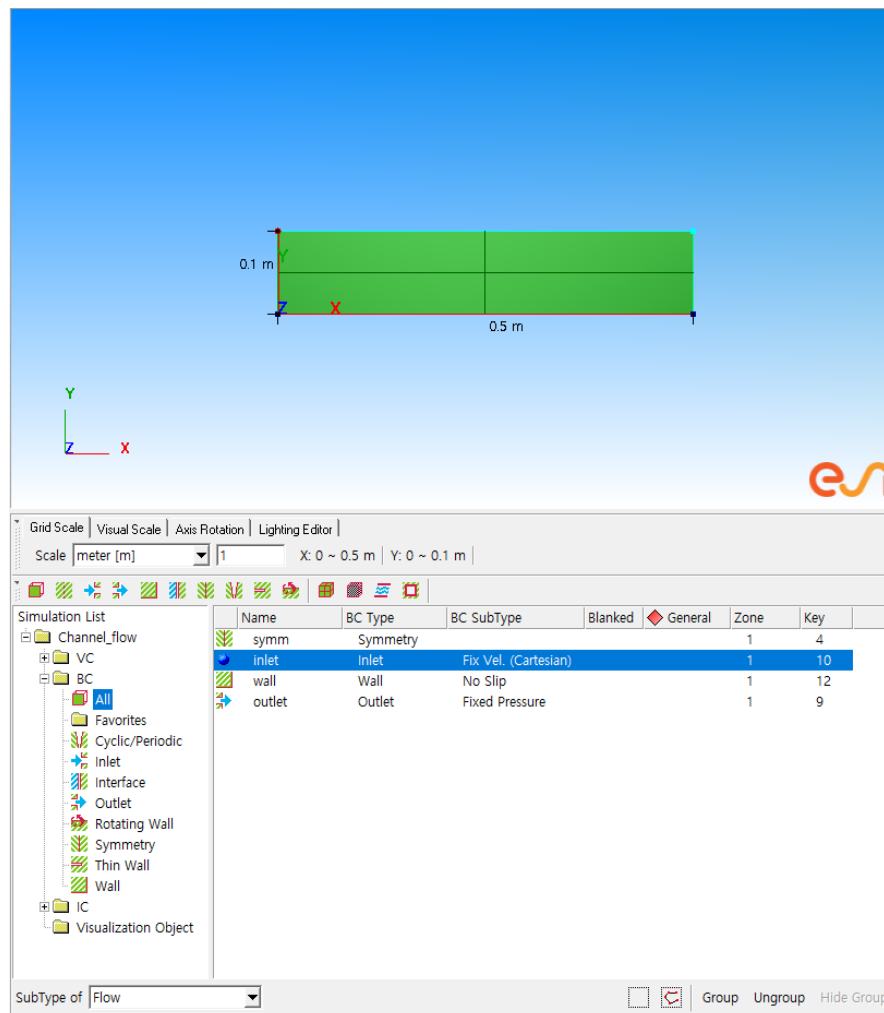


- **Variable**

1. Inlet의 Normal velocity
2. Outlet의 Fixed pressure

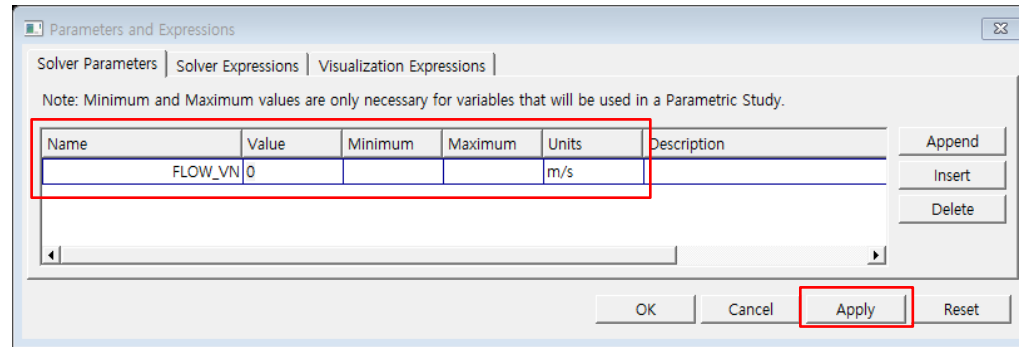
## • Normal velocity 설정

- BC → Inlet 선택 → SubType (Fix Vel. (Normal))확인
- Normal Velocity → Add New Parameter



- Normal velocity 설정

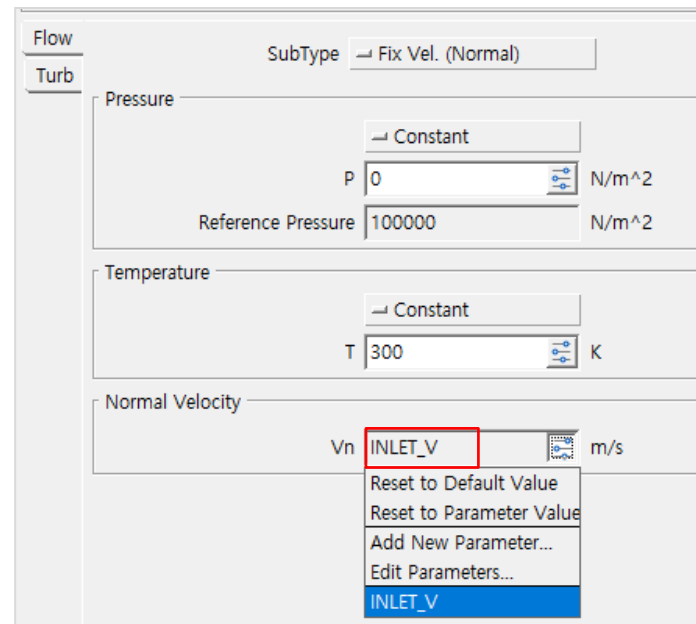
- 변수의 현재 값 및 최소, 최대 값 설정



- 변수명 변경 가능

바뀐 변수가 제대로 설정되었는지 확인

ex) FLOW\_VN → INLET\_V 변경시



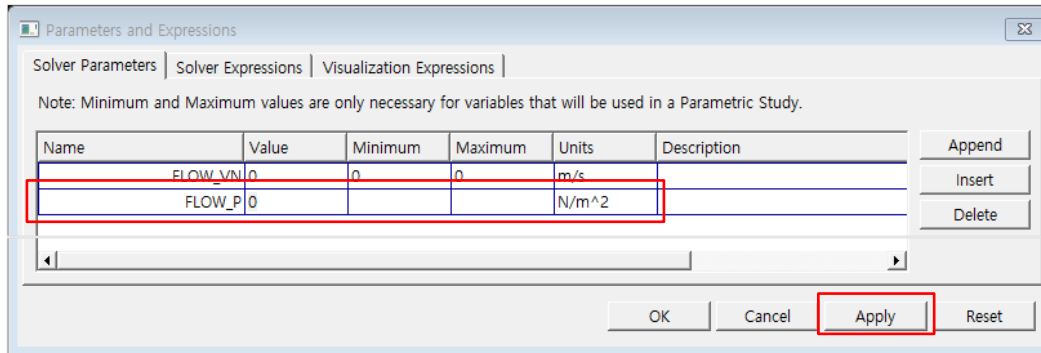
## Fixed Pressure 설정

- BC → Outlet 선택 → SubType (Fixed Pressure) 확인
- Pressure → Add New Parameter

The screenshot illustrates the setup of a Fixed Pressure boundary condition in ESI-Flow. The main window shows a 2D channel flow simulation with a green rectangular domain. The dimensions are 0.5 m (width) and 0.1 m (height). The left sidebar shows the 'Simulation List' with a tree structure: Channel\_flow > VC > BC > All. The 'outlet' boundary is selected. The right sidebar shows the 'BC Setting Mode' for the 'outlet' boundary, with 'SubType' set to 'Fixed Pressure'. The 'Pressure' section shows 'P' set to 0 N/m<sup>2</sup>. A context menu is open over the 'P' value, with 'Add New Parameter...' highlighted. The context menu also shows 'Reset to Default Value', 'Edit Parameters...', and 'FLOW\_VN'.

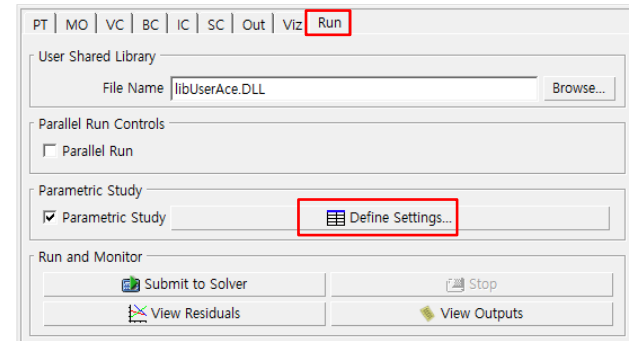
| Name   | BC Type  | BC SubType        | Blanked | General | Zone | Key |
|--------|----------|-------------------|---------|---------|------|-----|
| symm   | Symmetry |                   |         |         | 1    | 4   |
| inlet  | Inlet    | Fix Vel. (Normal) |         |         | 1    | 10  |
| wall   | Wall     | No Slip           |         |         | 1    | 12  |
| outlet | Outlet   | Fixed Pressure    |         |         | 1    | 9   |

- **Fixed Pressure 설정**
  - 변수의 현재 값 및 최소, 최대 값 설정
  - 이름 변경 가능

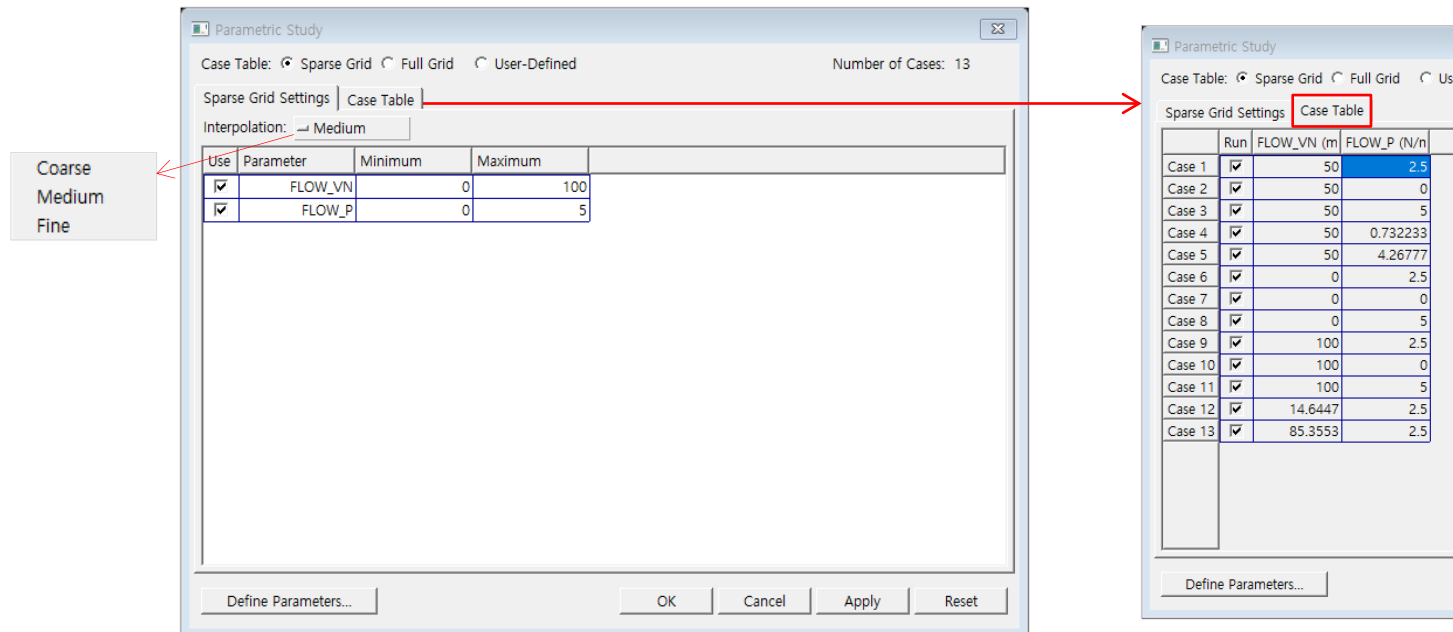


## • Case setting

- Run tab → Parametric Study 체크 → Define Settings..

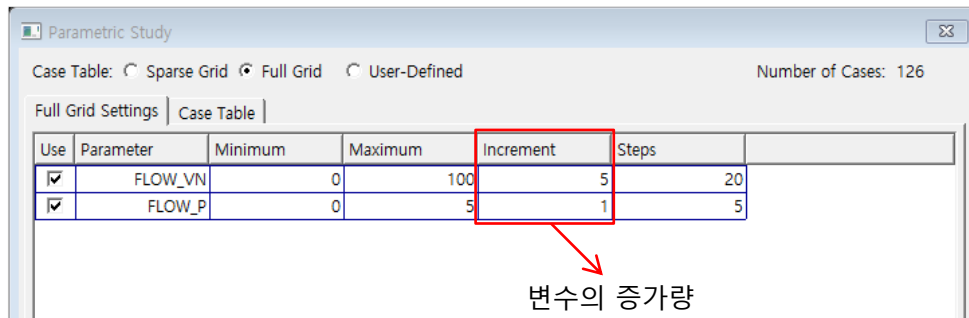


- Sparse Grid : 변수의 최소 최대값을 이용하여 적절한 간격으로 계산을 수행할 case를 선정
- Case Table : Case Table tab에서 계산을 수행할 case의 변수 값을 확인 가능함



- **Case setting (Full Grid)**

- Full Grid : 최소, 최대값 및 변수의 증가량을 직접 조절하여 case 선정 가능
- Case Table : Case Table tab에서 계산을 수행할 case의 변수 값을 확인 가능함



- **Case setting (User-Defined)**

- 사용자가 직접 변수의 값을 바꿔서 계산을 수행함

