OpenFoam Course

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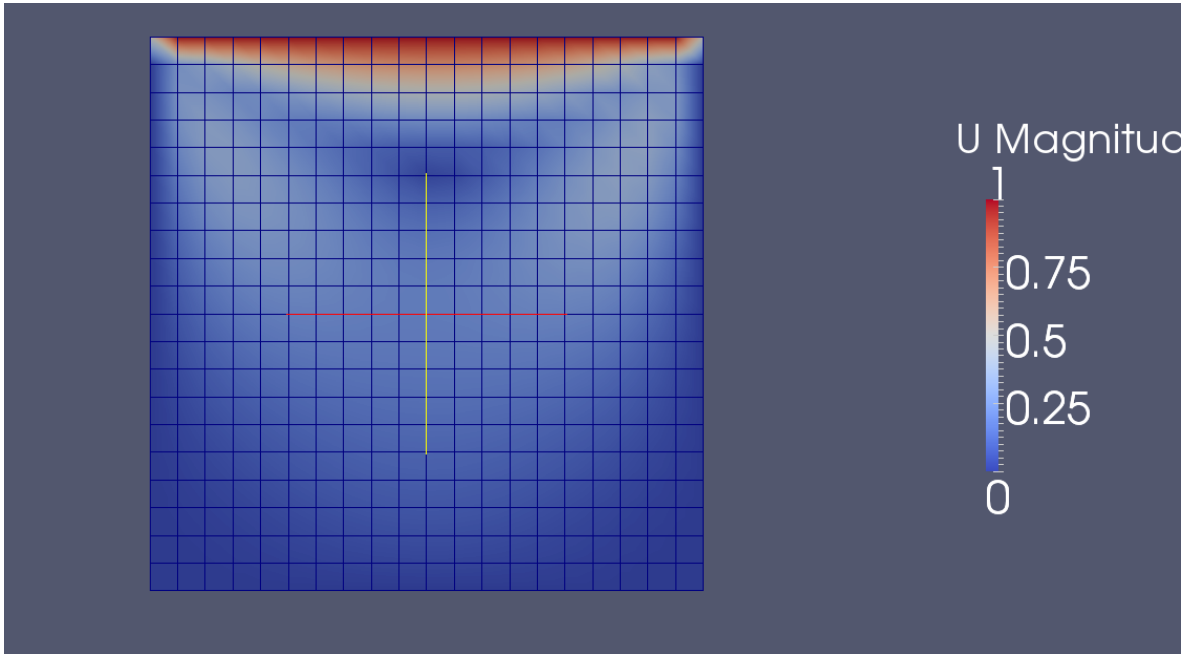
Cavity

- cd $FOAM RUN/tutorials/incompressible/icoFoam/cavity
- blockMesh
- icoFoam
- paraFoam



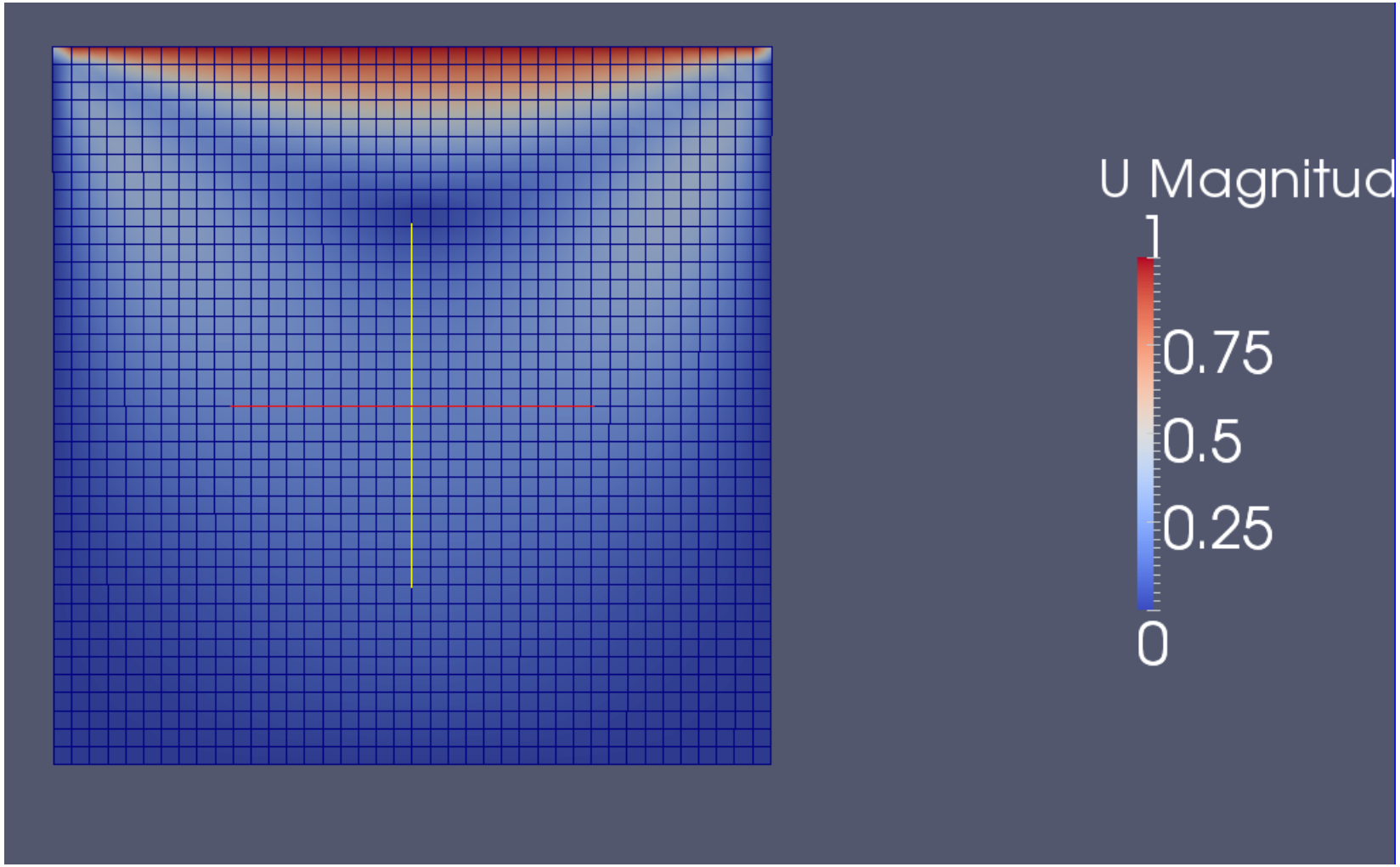
CavityFiner

- To make mesh finer go to blockMeshDic file and in blocks Change according to Picture

```
blocks
(
    hex (0 1 2 3 4 5 6 7) (20 20 1) simpleGrading (1 1 1)
);
```

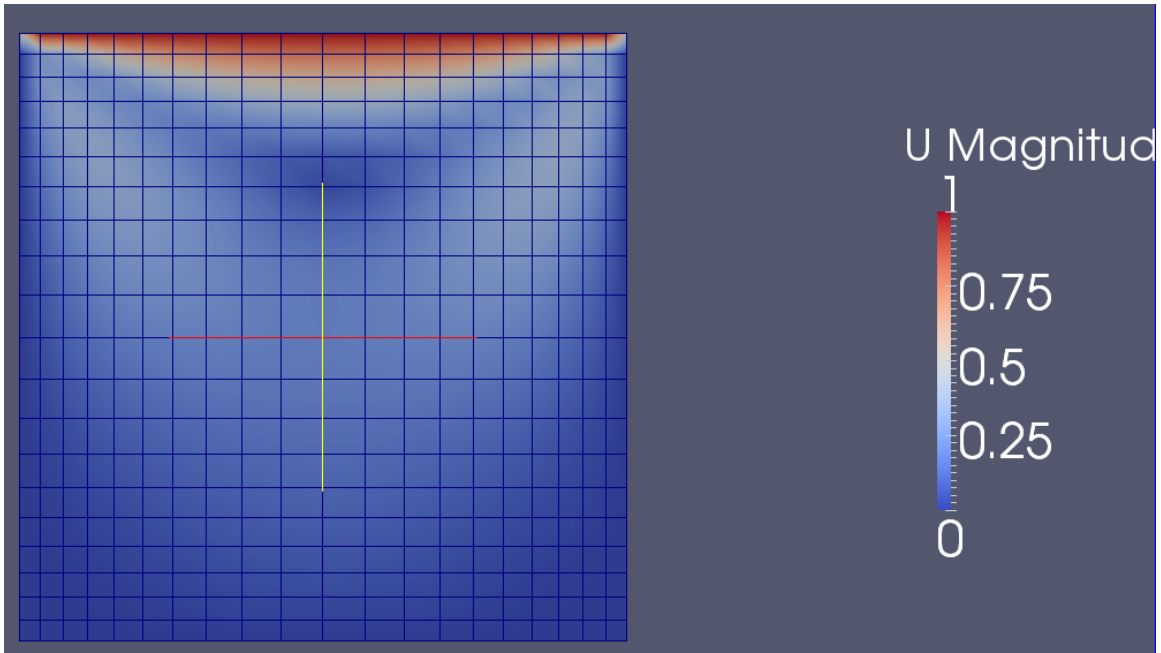
```
blocks
(
    hex (0 1 2 3 4 5 6 7) (40 40 1) simpleGrading (1 1 1)
);
```

CavityFiner Cont.



Cavity Grade

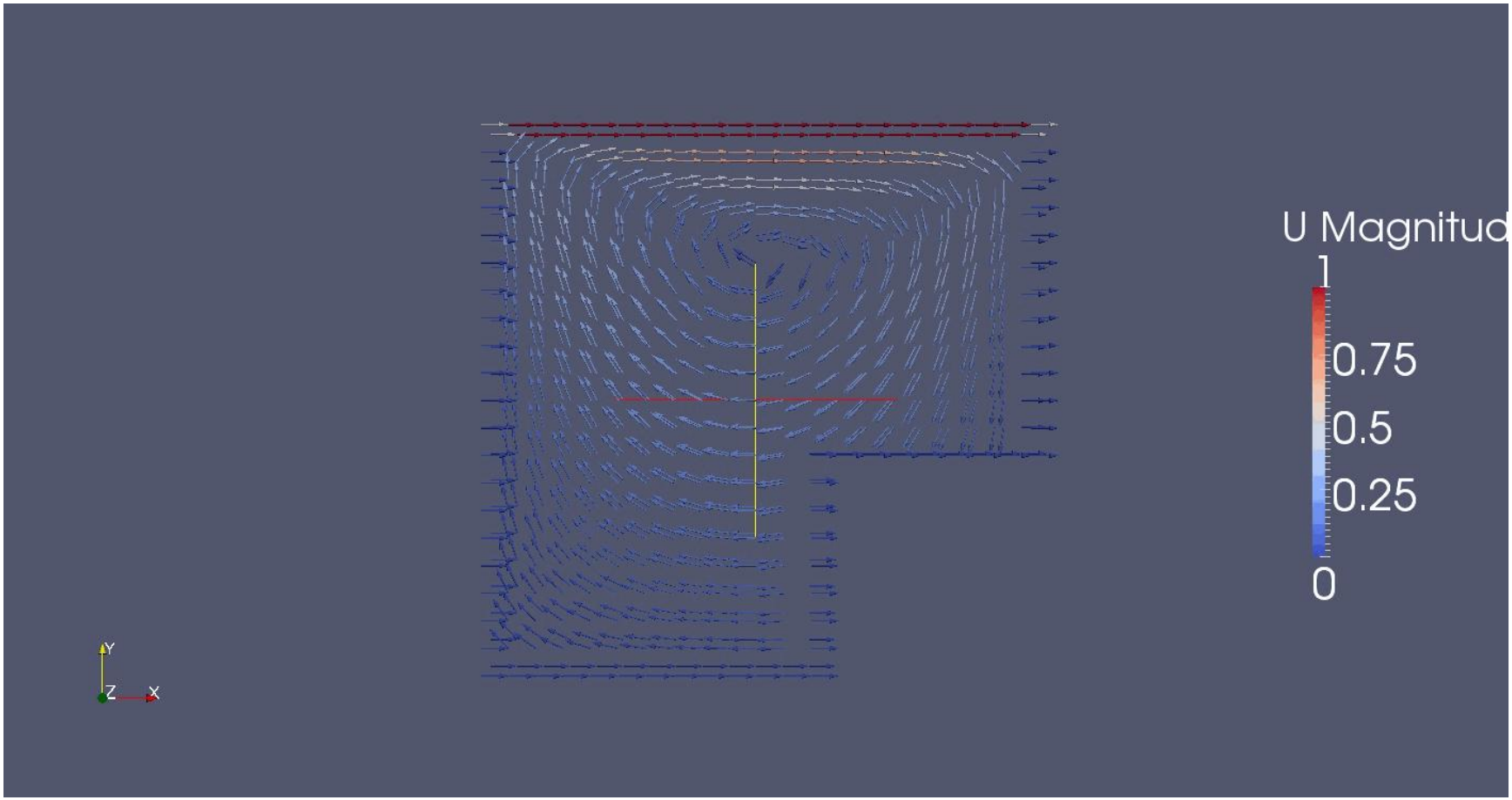
- Go to cavityGrade/system/controlDict file.
- Put startTime : 0.7 and endTime : 0.8.
- cd $FOAM RUN/tutorials/incompressible/icoFoam/cavityGrade
- mapFields ../cavityFine –consistent
- icoFoam
- paraFoam



CavityClipped

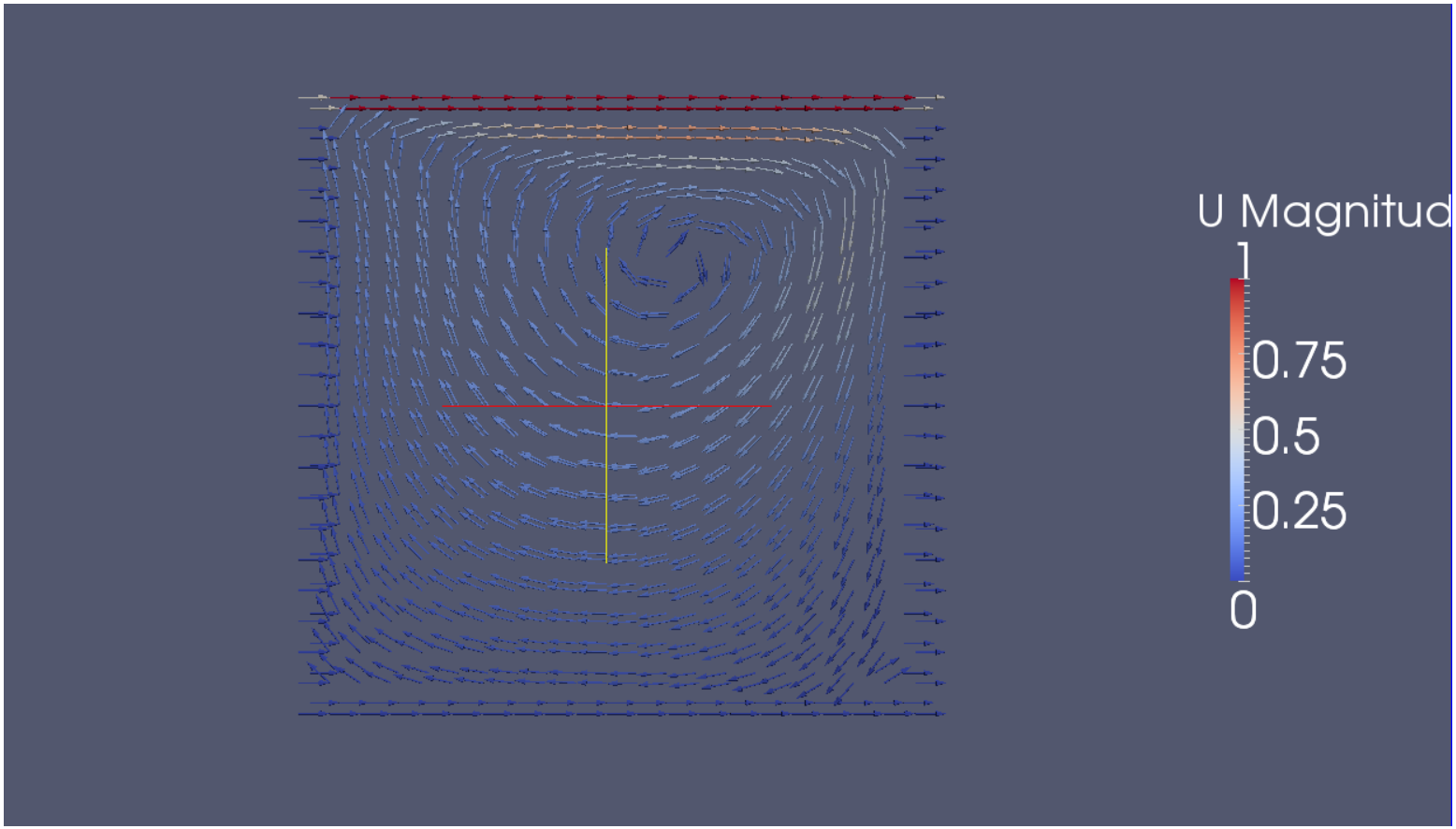
- blockMesh
- cp –r 0 0.5
- Change in controlDict; starttime to 0.5 and endtime to 0.7
- mapFields ../cavity
- Change U field from nonuniform to uniform (0,0,0)
- icoFoam
- paraFoam

CavityClipped Movie



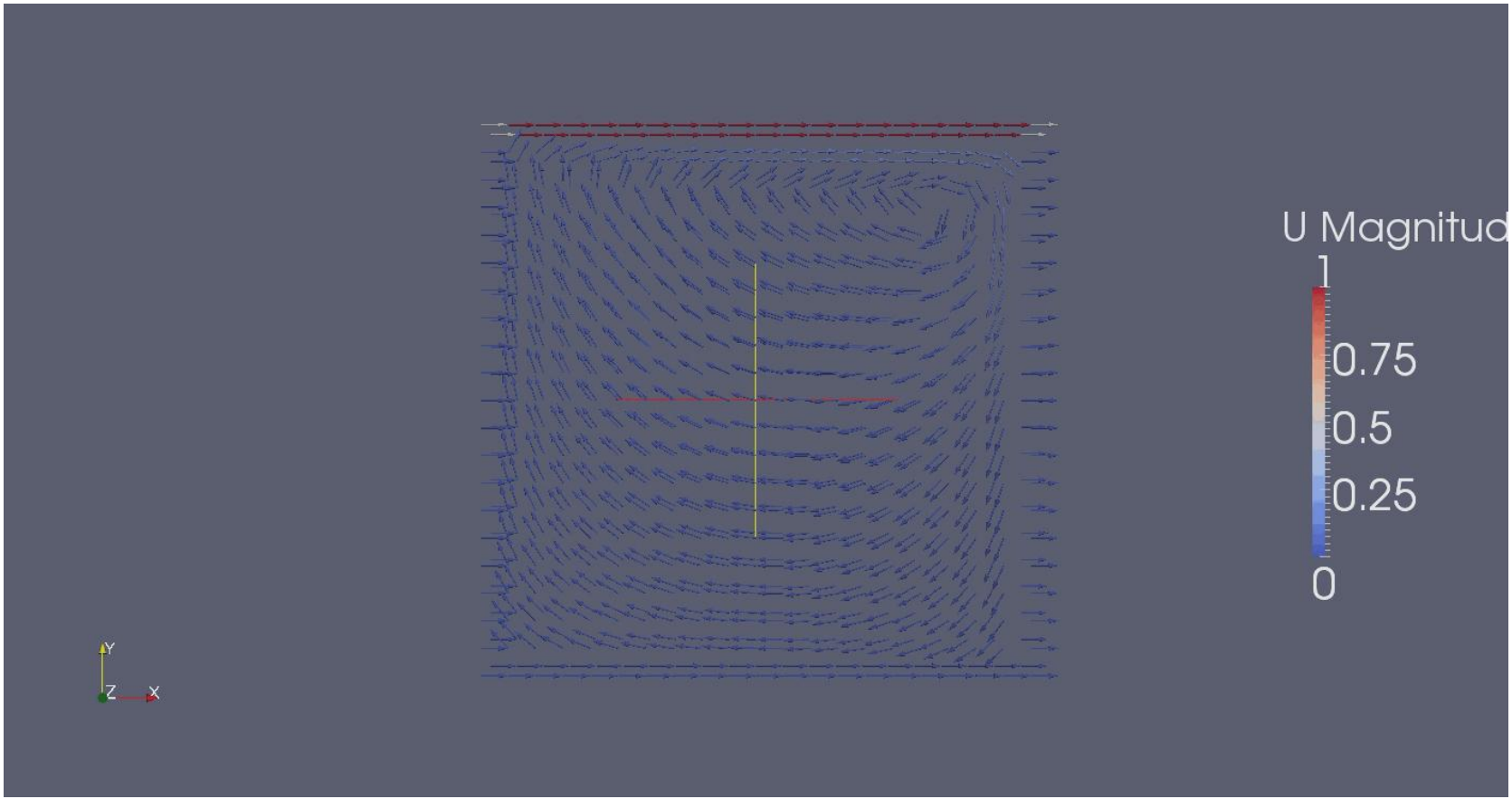
CavityHighRe

Increase the Reynolds number 10 times by change the nu to 10e-3



High Reynolds (Reynolds-averaged Simulation (Ras)

- Go to pisoFoam/ras directory
- Run blockMesh
- Run pisoFoam (endtime 10sec)



Dam Break

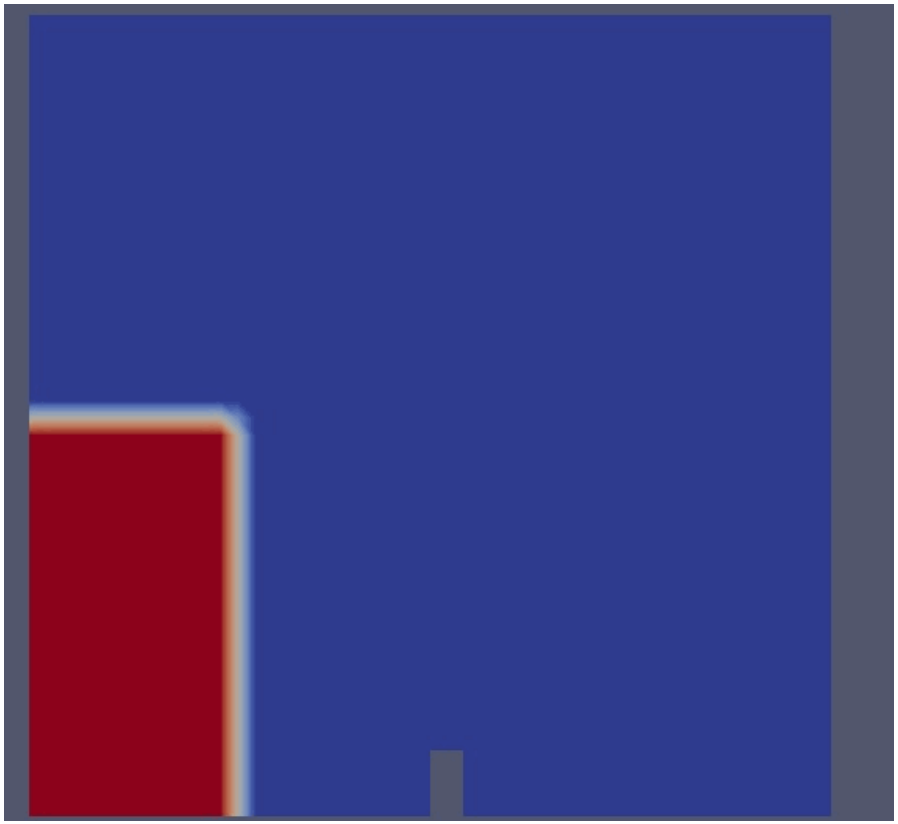
- cd $FOAM RUN/tutorials/multiphase/interFoam/laminar/damBreak
- blockMesh
- setFields
- interFoam

Dam Break Fine

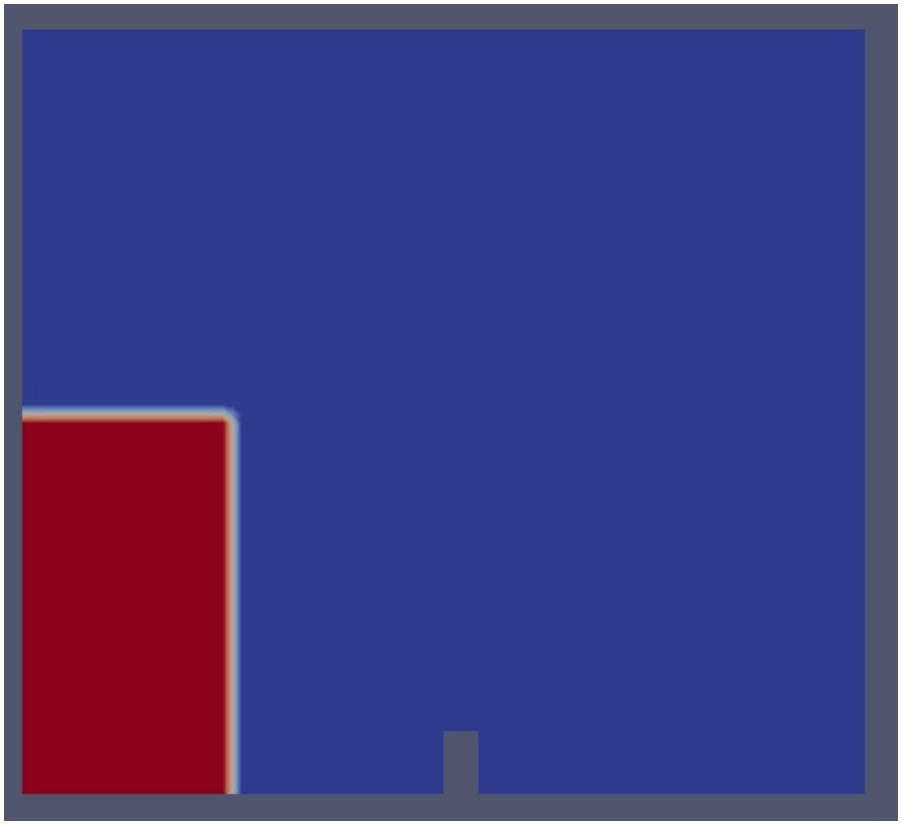
- Make damBreakFine case
- Go to blockMeshDict and decrease mesh size from blocks according to the picture
- blockMesh
- setFields
-

```
blocks
(
    hex (0 1 5 4 12 13 17 16) (46 10 1) simpleGrading (1 1 1)
    hex (2 3 7 6 14 15 19 18) (40 10 1) simpleGrading (1 1 1)
    hex (4 5 9 8 16 17 21 20) (46 76 1) simpleGrading (1 2 1)
    hex (5 6 10 9 17 18 22 21) (4 76 1) simpleGrading (1 2 1)
    hex (6 7 11 10 18 19 23 22) (40 76 1) simpleGrading (1 2 1)
);
```

Dam Break (movie)



Coarse Mesh



Fine Mesh

Red Part: Water ; Blue Part : Air

PitzDaily

- blockMesh
- smpleFoam
- paraFoam

New Tutorial

- forces: functionObject

- Description Calculates the forces and moments by integrating the pressure and skin-friction forces over a given list of patches.
- Member function forces::write() calculates the forces/moments and writes the forces/moments into the file <timeDir>/forces.dat
- SourceFiles forces.C , forces.H