

Importing Mesh files in OpenFOAM

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<http://www.sakshat.ac.in>

National Mission on Education through ICT

<http://spoken-tutorial.org>

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Learning Objectives

In this tutorial, you will learn to



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Learning Objectives

In this tutorial, you will learn to

- **Import Mesh files**



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Learning Objectives

In this tutorial, you will learn to

- Import Mesh files
- from a meshing software



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Learning Objectives

In this tutorial, you will learn to

- Import Mesh files
- from a meshing software
- in OpenFoam



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System Requirement

- **Linux Operating System Ubuntu version 12.04**



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System Requirement

- **Linux Operating System Ubuntu version 12.04**
- **OpenFOAM version 2.1.1**



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System Requirement

- **Linux Operating System Ubuntu version 12.04**
- **OpenFOAM version 2.1.1**
- **ParaView version 3.12.0**



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Pre-requisite

- **Generate a mesh file from software like :**



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Pre-requisite

- **Generate a mesh file from software like :**
- **Gambit**



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Pre-requisite

- **Generate a mesh file from software like :**
- **Gambit**
- **Ansys ICEM**



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Pre-requisite

- **Generate a mesh file from software like :**
- **Gambit**
- **Ansys ICEM**
- **CFX**



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Pre-requisite

- **Generate a mesh file from software like :**
- **Gambit**
- **Ansys ICEM**
- **CFX**
- **Salome, etc**



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blockMesh limitations

- Using blockMesh we can only create simple geometries



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blockMesh limitations

- Using blockMesh we can only create simple geometries
- For example box, pipe, etc



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blockMesh limitations

- Using blockMesh we can only create simple geometries
- For example box, pipe, etc
- Difficult to create complex geometries using blockMesh



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Importing mesh

- **OpenFOAM supports importing mesh from**



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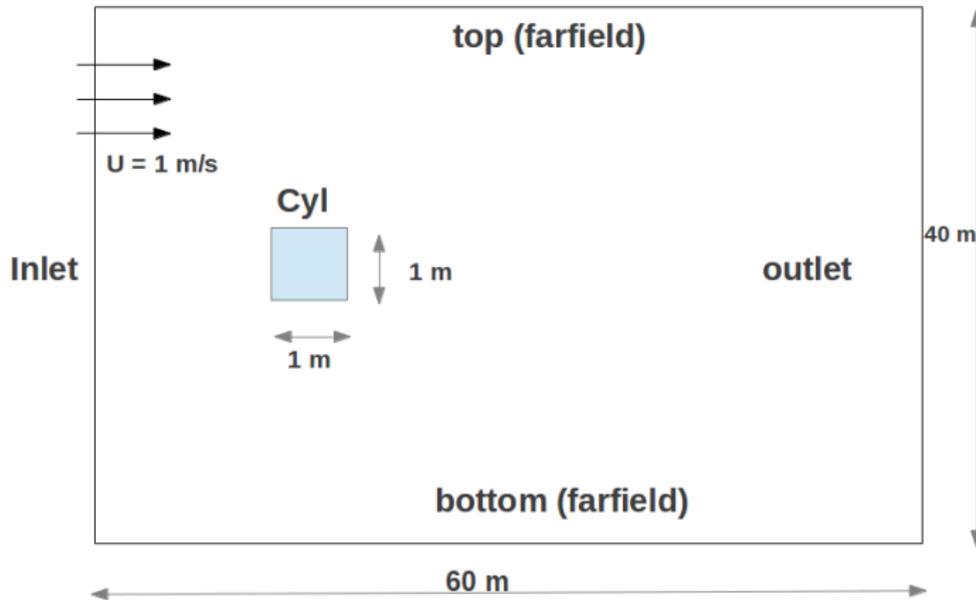
Importing mesh

- **OpenFOAM supports importing mesh from**
- **other third party software**



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Boundary and Initial condition



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Inlet parameters

- Free stream velocity, $U = 1\text{m/s}$



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Inlet parameters

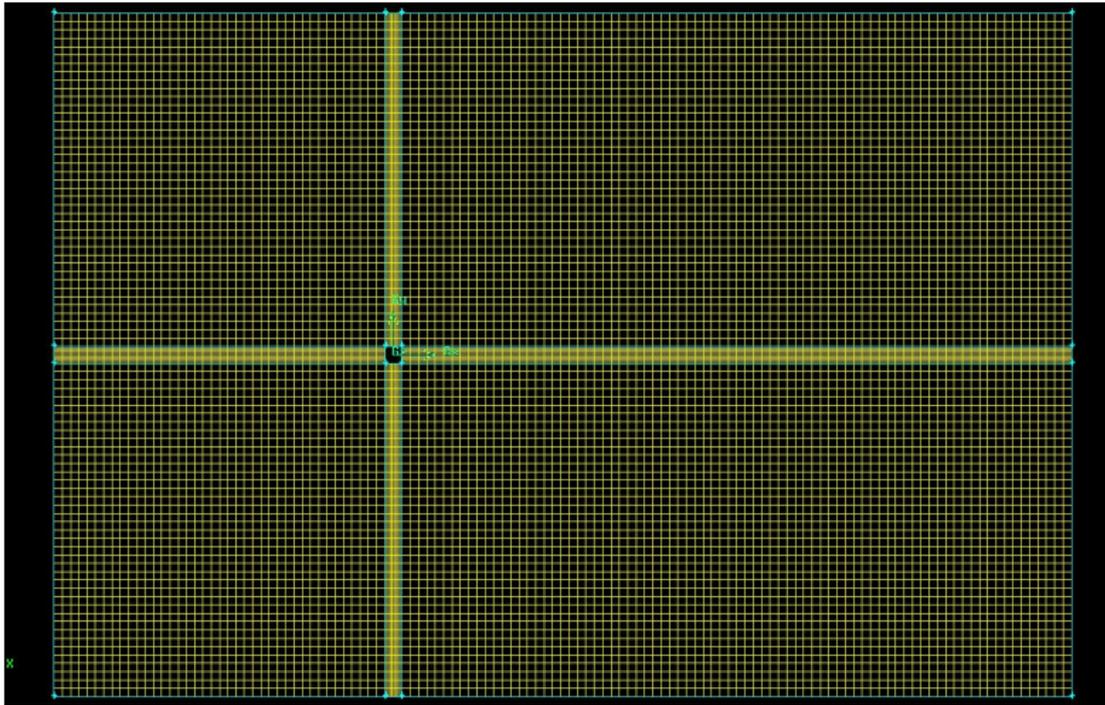
- Free stream velocity, $U = 1\text{m/s}$
- We are solving this for a Reynolds no, $Re = 100$



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Mesh file



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List of commands to import files

- List of commands to import geometry from other software



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List of commands to import files

- **List of commands to import geometry from other software**
 - **ANSYS : ansysToFoam <file name>**



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List of commands to import files

- **List of commands to import geometry from other software**
 - **ANSYS** : `ansysToFoam <file name>`
 - **IDEAS** : `ideasToFoam <file name>`



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List of commands to import files

- **List of commands to import geometry from other software**
 - **ANSYS** : `ansysToFoam` <file name>
 - **IDEAS** : `ideasToFoam` <file name>
 - **CFX** : `cfxToFoam` <file name>



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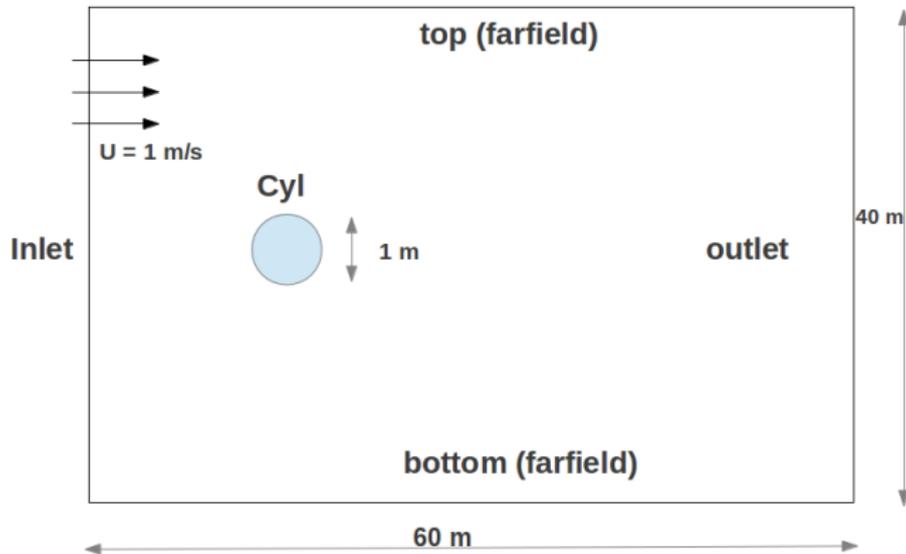
List of commands to import files

- **List of commands to import geometry from other software**
 - **ANSYS** : `ansysToFoam <file name>`
 - **IDEAS** : `ideasToFoam <file name>`
 - **CFX** : `cfxToFoam <file name>`
 - **SALOME** : `ideasUnvToFoam <file name>`



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Assignment



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Assignment

- Mesh file : `circ cyl.msh`



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Assignment

- Mesh file : `circcyl.msh`
- Solver : `icoFoam`



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Summary

In this tutorial we learnt -

- **Importing geometry from other meshing softwares**



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About the Spoken Tutorial Project

- Watch the video available at http://spoken-tutorial.org/What_is_a_Spoken_Tutorial
- It summarises the Spoken Tutorial project



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Spoken Tutorial Workshops

The Spoken Tutorial Project Team

- Conducts workshops using spoken tutorials
- Gives certificates to those who pass an online test
- For more details, please write to contact@spoken-tutorial.org



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Acknowledgements

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- More information on this Mission is available at

<http://spoken-tutorial.org/NMEICT-Intro>



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