

# Software Lab:

## An independent library to read VTK files

### Setting

Many scientific computation frameworks need to output simulation results. One of the most popular choices is to use Paraview and the Visualization Toolkit (VTK). Within VTK several file formats exist that differ in writing time and storage requirements.

While the VTK library allows to write and read data files, this comes with introducing the dependency to the VTK project. This means that setting up any of these scientific frameworks requires an installation of the VTK libraries. Setting up the complete VTK library just to use a very small portion of its functionality is undesirable.

Motivated by this, the vtu11 project (<https://github.com/phmkopp/vtu11>) aims to provide a lightweight framework for writing .vtu files. The aim of this project is to extend the functionality of vtu11 to also read unstructured grids in the .vtu file format.

### Task

- Extend the vtu11 library to read data in commonly used file formats (ASCII, binary, compressed binary)
- Extend the vtu11 project to work in parallel environments

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### References

- [1] Schroeder, Will; Martin, Ken; Lorensen, Bill (2006), The Visualization Toolkit (4th ed.), Kitware, ISBN 978-1-930934-19-1