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# FDTD calculations via GSvit

As shown on [First simulation](#) page, there are three steps in a successful calculation. First step is to **setup model** that we want to use for the calculation. In brief this means to address the following questions:

- What should be voxel size and real size of the computational domain?
- How many steps of the calculation will be used, are we searching for a steady solution or some transient effect?
- How the electromagnetic field should enter it, e.g. like a plane wave?
- Will it interact with some object and if yes, what material the object will be made from?
- What should be the output, e.g. field amplitude in some position?
- Should the calculation be done on a computer processor(s) or a graphics card?

All this can be setup via a parameter file, editable in a text editor or using XSvit parameter file viewer. It is described in next paragraphs of this section.

After this is done, we **run the calculation**, which means that we run the solver GSvit with parameter file as an argument, either manually or from XSvit GUI. We wait until computation is finished, which might take something between seconds and hours, depending on computational domain size, number of steps and complexity of algorithms used.

Finally, we want to **analyse results**. Text outputs can be analysed in your favourite graph plotting or spreadsheet application, cross-section outputs can be analysed using [Gwyddion](#) and volume outputs can be analysed by [Paraview](#).

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<http://www.gsvit.net/wiki/> - **GSvit documentation**

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