

# ABxM.Core: Further Instructions

## 1 Contents of the publication

The publication of the ABxM Framework on the research data repository of the University of Stuttgart (DaRUS) consists of the following files:

- a ZIP-archive containing the source code and a few example GH<sup>1</sup> files,
- a help file in CHM<sup>2</sup> format, and
- these instructions.



## 2 Default use case

For the default use case of the ABxM.Core libraries in Rhinoceros 3d, you don't need to compile the source code at all. Instead, you can either download the library from [www.food4rhino.com](http://www.food4rhino.com) or use the package manager of Rhino 7<sup>3</sup>. In this case, you can go on and directly try out the example files provided in the folder "Examples".

In case you would like to compile the source code yourself, please follow the steps below.

## 3 Expert use case

### 3.1 Open the solution

The source code contains a solution file, which can be opened by Visual Studio. In order to ensure compatibility with Rhino 6, the ABxM.Core libraries target .NET Framework 4.5. When opening the source code in Visual Studio 2022 (Version 17) make sure to NOT update to .NET Framework 4.8 or higher if you want to maintain compatibility with Rhino 6. You can use .NET Framework 4.5 with Visual Studio 2022, even though VS seems to want to force you to upgrade. Microsoft recommends using Visual Studio 2019 in this case, but there are workarounds<sup>4</sup>.

### 3.2 Compile the solution

Once you have the solution open, you can build (compile) it. A first build will very likely produce an error, because the project "AbmFramework.Grasshopper" references the DLL of the project "AbmFramework.Core". Try to build it again. A post-built event that is defined in the \*.csproj files will try to copy the compiled DLLs to the following path on your system:

```
$(AppData)\Grasshopper\Libraries\
```

In order to make sure that this path exists, you need to have either Rhino 7 or Rhino 6 installed, which both come with Grasshopper on board.

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<sup>1</sup> GH is the binary format of Grasshopper files.

<sup>2</sup> CHM is an executable and you might have to unblock it after download by right-clicking on the file → Properties, then check the box next to "Unblock".

<sup>3</sup> There is also an evaluation version<sup>3</sup> of Rhino 7 that is valid for 90 days available at

<https://www.rhino3d.com/download/rhino-for-windows/evaluation>

<sup>4</sup> See, for example, the following link: <https://stackoverflow.com/questions/70022194/open-net-framework-4-5-project-in-vs-2022-is-there-any-workaround>

### 3.3 Try out the example files

Once you have successfully compiled, you can open Rhino and Grasshopper and try out the example files that we have provided in the folder “Examples”.

## 4 Other use cases

In case you don't want to use ABxM.Core with Rhino but with another software, e.g., Unity, you can get rid of the Post-build events mentioned in 3.2. Very importantly, you will also have to remove references to Grasshopper in the code, because Grasshopper is not part of Rhino. Inside, the technology that enables the native use of Rhino inside other software packages. However, this is only the case in the file CartesianAgentSystem.cs, which contains references to Grasshopper's Delaunay and Voronoi solvers.

## 5 Contact us

If you have problems with any of those steps or just feel like getting in touch, please contact us at [abxm@icd.uni-stuttgart.de](mailto:abxm@icd.uni-stuttgart.de).

We are looking forward to hearing from you!

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