

What is this short guide about?

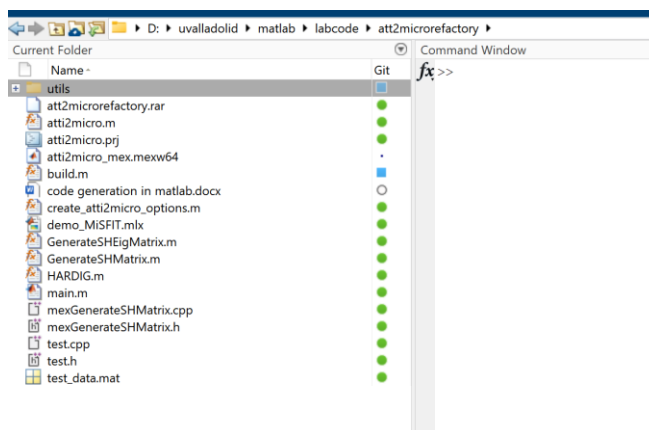
You will learn how to generate code for c++ and mex files using matlab.

What are the previous requirements?

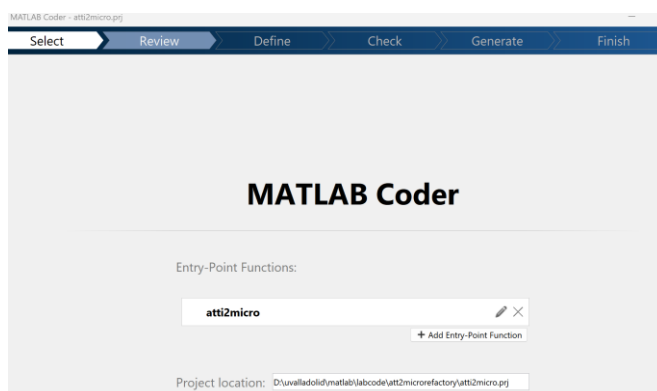
1. Matlab Installed
2. Access to the DMRIMatlab code, you can find it here <http://www.lpi.tel.uva.es/dmrilab>

How to Use the GUI to generate code

1. Get the code you want to work with, make sure that you have all the files you need

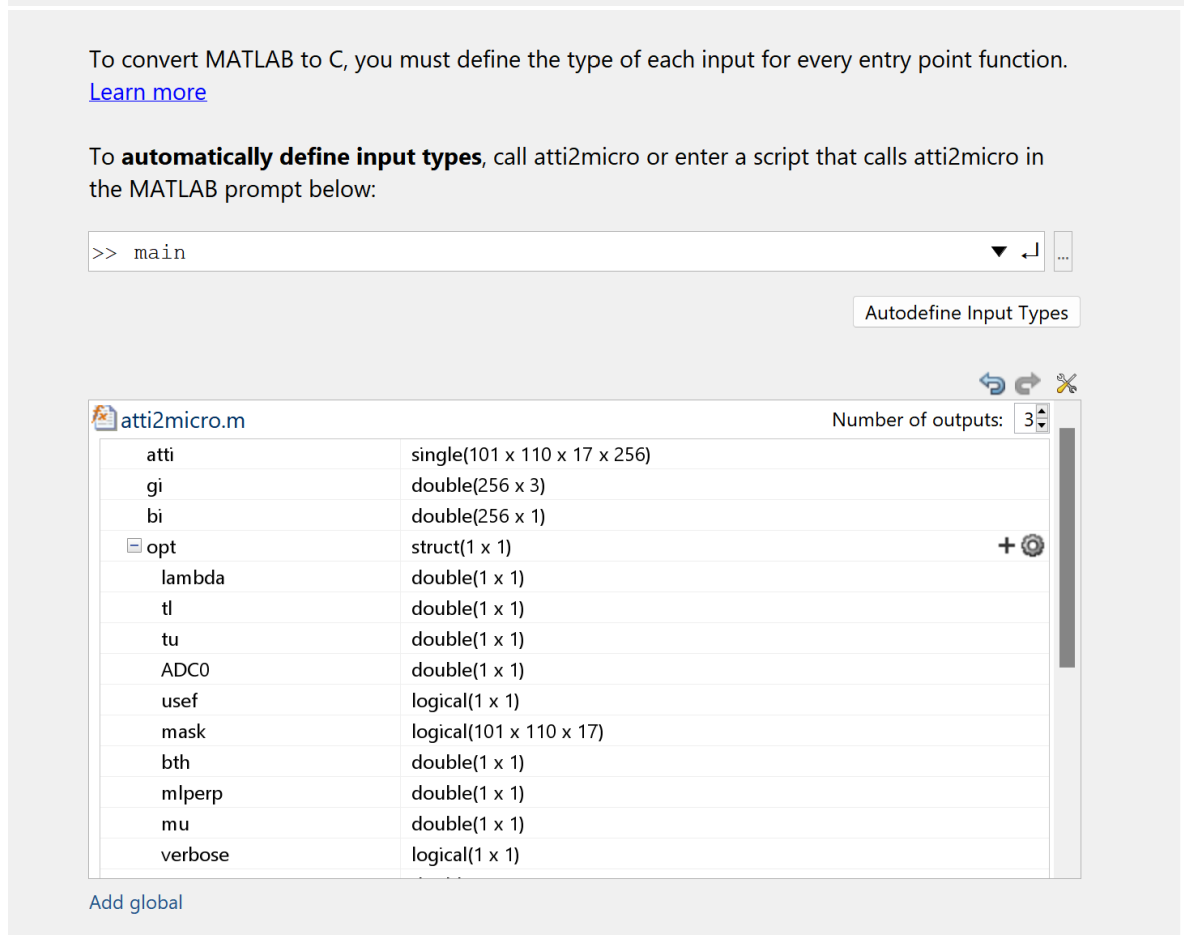
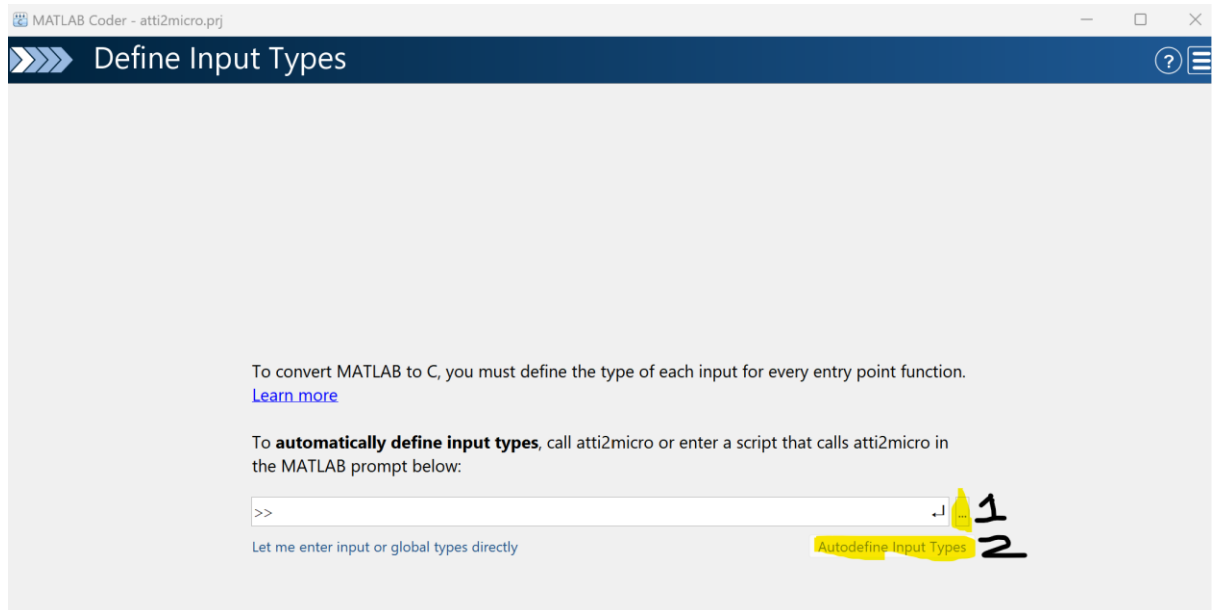


2. It is important that you have a main.m file that will call your function. In this case, we are working with the att2micro.m file and we will call it from the main.m file.
3. Click in Apps> Matlab Coder and a GUI will open. Then select the function “att2micro.m”. Press Next



4. Select the Main function, which is using and calling att2micro.m . Then click on “Add Entry-Point Function”

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- Next and then click on "Check for Issues". If there are issues that you need to correct, the issues will appear in this window.
- If no issues found, click next and the code will be generated in the same folder you are working on

Generate code using script

1. Create a Build script

```
main.m build.m +
1 function build(target)
2 %build mex or build lib
3
4
5     entryPoint = 'atti2micro';
6
7
8     cfg = coder.config(target);
9
10    cfg.TargetLang = 'C++';
11
12    cfg.CustomSource = ['mexGenerateSHMatrix.cpp']; %using code from the function mexGenerateSHMatrix.cpp
13
14    cfg.CustomInclude = 'D:\uvaladolid\DMRIMatlab\mxcode\mathsmex'; %adding path where the code from above is
15
16
17    cfg.CustomSourceCode = ['#include "mexGenerateSHMatrix.h"']; %you need a header
18
19
20    cfg.GenerateReport = true;
21    cfg.LaunchReport = false;
22
23
24    load test_data.mat;
25    T=toc; % This is always a large piece of data
26    fprintf(1,'It took %f seconds to load data\n',T);
27
28    tic;
29    [M,N,P,G] = size(atti);
30    options = create_atti2micro_options(mask,M,N,P,G); % you need a way to pass the data and other options to the line below
31
32
33    %generate code
34    codegen(entryPoint,'-args',{atti, gi,bi, options),'-config', cfg); % here the magic starts, you can modify {atti, gi,bi, options} and pass your own parameters here
35
36 end
```

2. Go to the console and write: build mex *note: you can also write build lib to get a c++ library

```
>> build mex
It took 300.666185 seconds to load data
Code generation successful: View report
```

3. If there are errors you will see the errors in the same command console